MEDICAL LIBRARY
HISTORICAL BUILDING
DES MOINES, IOWA

THE JOURNAL OF THE FLORIDA MEDICAL ASSOCIATION
PUBLISHED MONTHLY

Volume XVI | Jacksonville, Florida, June, 1930 | Number 12

THE CORRELATION OF THE URINARY FINDINGS AND RENAL PATHOLOGY IN EXPERIMENTAL STREPTOCOCCAL NEPHRITIS*

CHARLES W. DUVAL, M.D.,
New Orleans, La.

The exact relationship between the renal tubular and glomerular structures and their functional activities is by no means clear in spite of much experimental research. While the presence of albumen, casts and blood in the urine is indicative of a renal lesion these abnormal constituents offer little information as to the location and nature of the changes, whether structural or functional, in the kidneys. Furthermore, the chronic forms of nephritis in man have offered the greatest difficulties in interpretation. The views regarding the sequence of the precursory anatomical changes underlying certain chronic interstitial types of nephritis have up to the present time largely been conjecture because the complexity of the functions and the lesions of the various parts of the kidney unit prevent clinically an accurate correlation of the urinary findings and renal pathological physiology.

The purpose of this paper is to report upon the results of animal experiments which were instituted in order to study the sequence and relation of the structural renal changes, and to trace the progress of their anatomical development in correlation with the abnormal urinary findings in dogs in whom nephritis had been induced with (1) living culture, (2) killed culture and (3) the filtered in vivo prepared toxic product ("Lysate") of streptococcus scarlatinae.

EXPERIMENTAL.

In view of the fact that nephritis frequently occurs spontaneously in the dog, we have used only young animals whose urine over a period of ten days to two weeks was free from albumen, casts and other abnormalities, and whose kidney function, as determined by the phenolsulphenolphthalein test, was within the normal limits. During the period of observation the animals were kept in metabolism cages to facilitate the collection of urine. Catheterized specimens were not employed so the figures in the tables for urine volumes are averages only, which were obtained by dividing the total urine volume of seven days by the number of days in the period. Daily examinations of urine were made for abnormalities over a period of from one to three weeks after the administration of the nephrotoxic substance (killed culture and "Lysate" which had been prepared in vivo from the streptococcus scarlatinae by the method of Duval and Hibbard[1]). In the case of dogs who survived several months, the urine examinations were made at weekly intervals after the first three weeks. The phenolsulphenolphthalein test for kidney function was repeatedly carried out on all dogs at approximately weekly intervals.

Fourteen young healthy dogs were employed in the experiment. The methods of inducing the nephritis were intraperitoneal and intravenous injections of "living", "killed" culture and "Lysate" of streptococcus scarlatinae. The dosage of "killed" culture was the entire 48 hour surface growth of twelve blood-agar slants suspended in 15 c.c. to 30 c.c. of normal sterile saline; while the "Lysate" dose was 15 c.c. to 50 c.c. of sterile Berkefeld "N" filtered peritoneal fluid from the immune animal that had previously received intraperitoneally the 48 hour streptococcal surface growth of 12 blood-agar slants. The dosage of "living" culture employed was the 48-hour surface growth of three blood-agar slants suspended in 10 c.c. of sterile water.

RENAL PATHOLOGY

The acute renal lesions of experimental streptococcal nephritis in the dog are characterized macroscopically by an increase in size of the kidney, by swelling of the glomeruli which project above the cut surface as dark red dots and by pinhead and smaller discrete yellowish white lineations in the cortical substance and by a sprinkling throughout the organ with minute hemorrhages. The gross appearance of the kidney of the experi-

*Read before the 57th Annual Meeting of the Florida Medical Association, Pensacola, May 6, 7, 1930.

mentally induced chronic interstitial nephritis in the dog is that of a normal or slightly under normal sized organ in which the consistence is increased and the color is a pale reddish brown. There are also numerous small retention cysts and cicatricial depressions scattered through the cortical substance.

The earliest histopathology is an intense engorgement of the capillaries of the glomeruli with densely packed erythrocytes that appear as though the hemoglobin has been completely dissolved out. In many of the capillary tufts the loops are enormously distended with erythrocytic thrombi. The occluded capillaries are further distended by masses of eosin-staining material which is homogenous apparently formed from the fused and destroyed red blood cells. These hyalin thrombosed capillary loops often become glued to the wall of Bowman's capsule. For some dead capillary loops, new connective tissue may partially or completely cicatricise them. In other glomeruli where the capillaries are not blocked by thrombi, the lumina contain large numbers of lymphocytic or endothelial cells, the character of which is difficult to determine since many appear to be outside of the capillaries in the capsular space. In no instance are these cells of the neutrophilic variety. We are inclined to regard them as endothelial cells because of their manner of staining and the character of the nucleus which is definitely vesicular and surrounded with considerable basic staining cytoplasm. In still other glomeruli extensive hemorrhage is noted which, in some instance, can be traced into the corresponding tubule. Sometimes the hemorrhage into Bowman's capsular space is so large as to misplace or crowd out the capillary tuft. When blood escapes into the capsular space, the red cells fuse into a homogeneous pink-staining mass which often becomes attached to Bowman's capsule. In these masses there commonly occurs connective tissue and epithelial cell invasion, producing the so-called "crescent." The fibrous tissue replacement of the hyalinized capillaries produces complete or partial glomerular sclerosis.

The tubular epithelium is not affected until quite late in the glomerular process, when it becomes swollen, granular and filled with fat droplets, especially is this so for the epithelium of the convoluted portion of the tubule. In places the epithelium desquamates and the tubule atrophies and eventually degenerates in those instances where the corresponding glomerulus is destroyed. All kinds of casts may be demonstrated. A significant feature is the absence of any acute inflammatory lesion in and about the involved tufts and tubules.

In dogs that had received several injections of streptococcal lysate, and allowed to live six months or longer, and previous urine examinations had showed the existence of an acute glomerular nephritis, the microscopic study of the kidneys reveals considerable interstitial connective tissue change of a reparatory character. In these kidneys there is noted fibrous tissue increase in the areas where the greatest damage has occurred to the glomeruli. In such connective tissue areas many of the tubules are atrophic and the glomeruli are in various stages of retrogression and some are actually necrosed. Certain convoluted tubules in the affected areas appear larger and others smaller than normal, even cystic for certain of those that are larger, due to the mechanical interference of the passage of urine caused by the contraction of the adjacent newly formed connective tissue.

The animals which receive the living culture of streptococcus showed at autopsy as the outstanding renal lesion focal and diffuse lymphocytic interstitial infiltration. The kidneys also show a moderate degree of glomerular change but no tubular. Few if any neutrophiles occur in the stromal lesion. Streptococci are demonstrable in the stained renal sections, and are recoverable in pure culture from the fresh tissue.

Correlation or Urinary Findings and Renal Disturbances.

The sequence and relation of the histological renal changes in correlation with functional disturbances as expressed by abnormal urinary constituents, has been studied from the commencement of the acute kidney lesion until chronic nephritis was well established.

The appearance of albumen and casts in the urine was a constant happening in all the injected dogs. In most cases albumen and casts occurred in 24 hours after the injection of the nephrotoxic agent, while in others these abnormalities were found only after two to three days. In addition to albumen and casts the majority of dogs showed quantities of blood and traces of bile in the urine, though usually these abnormal substances did not appear before the third day following the injection.

Four of the acute nephritic dogs were allowed to live for six months or longer. These animals

in two or three months after the third and last injection of the streptococcal nephrotoxin apparently returned to a normal renal function as indicated by the total absence of abnormal constituents in the urine. However, at autopsy there was very definite gross evidence of chronic renal changes which was confirmed by the microscopic study.

It is particularly noteworthy that the urine findings from day to day were a fairly reliable index to the anatomical changes occurring in the kidneys. Blood in the urine invariably meant glomerular hemorrhage, while fine granular casts foretold serious retrograde changes in the epithelium of the convoluted tubules which seemed to be dependent upon, but always secondary to, lesions of an obstructive character in the glomerular tufts. Here it is of interest to mention that the primary glomerular lesion followed by secondary tubular changes is the reverse picture to that in dogs induced with uranium nitrate, which according to MacNider[2] produces a primary lesion of the epithelial cells of the proximal convoluted tubules.

As early as the second day following the injection of the streptococcal nephrotoxin, the dogs passed abnormal quantities of urine which contained albumen, bile and blood. At this time there was usually a marked reduction in the elimination of phenolsulphenolphthalein which depressive period of renal function was the result of injury to the glomerular structures and not to the tubular which revealed by microscopic study of the kidneys from the animals sacrificed.

The functional changes gradually diminished in severity after a period of 3 to 4 days in dogs that received only one injection of nephrotoxin and the phenolsulphenolphthalein percentage elimination increased. These expressions of functional improvement occurred para parsu with the clearing of the glomerular injury. A second and third injection of the nephrotoxin was always followed by urine abnormalities of a much more severe character than those after a single injection. The albumen, blood and casts were markedly increased in the urine. Furthermore, these substances appeared in the urine within a few hours in dogs that previously had one or two injections of the nephrotoxin. Again, the reestablishment of normal renal function was much slower or progressively became worse until death ensued. In these animals there was more histological evidence of glomerular destruction and beginning evidence of retrograde changes for the epithelium of the convoluted tubules. The study of such kidney secretions permit of the deduction that regeneration of tubular epithelium does not occur where the corresponding glomerulus has been destroyed. This may possibly be explained on the ground that the blood supply to the tubule which is largely through the efferent branch of the glomerular tuft has become cut off by the disease process in the glomerulus.

DISCUSSION

The results of the experiment are of special interest since the renal changes were produced with a nephrotoxin that commonly causes nephritis in man. In consequence a closer analogy can be drawn to the human disease than is possible where improbably excitants of human nephritis, like uranium nitrate, have been employed.

In discussing experimental nephritis the question of allergy is to be considered in connection with its manner of production since specific lesions in the kidney have been produced with streptococcal antigen that are regarded as allergic. Birkhang[3] found allergy in a high percentage of rheumatic fever infections to the filtrate, autolysate and bacterial suspensions of various nonhemolytic streptococci, from which he concludes that there is a common allergenic factor in streptococcal products. Longcope[4] produced specific lesions in the kidney by occasioning in the previously sensitized experimental animal repeated protein intoxication. Long and Finner[5] succeeded regularly in producing glomerulonephritis by tuberculin injections into the sensitized experimental animal. Heplar and Simonds[6] report the results of their work upon the experimental production of allergic inflammation in the kidney. In all of these reported instances of experimentally induced allergic nephridides it would seem that the specific lesion has occurred only after the repeated injection of the antigenic substance or in animals in whom the hypersensitive state existed. That an allergic reaction accompanied by structural changes may occur simultaneously for the kidney and other organs as well as the skin is likely in any case where there exists a specific protein hypersensitiveness. Bacterial allergy most likely influences the clinical picture in all streptococcal nephritis of man, and particularly the post-scarlatinal form. In these cases as shown by Longcope[7] there are persisting foci of streptococci from which is absorbed a toxic product that upon reaching the already sensitized kidneys

excite new changes of an allergic nature. As regards the nephritis herein reported I do not believe that allergy could have played any part in the production since the specific renal changes regularly occurred following the first injection of antigen. To explain the nephritis on the basis of an allergic reaction it would be necessary to assume that the animals at the time of the experiment were hypersensitive to streptococcal protein. It is not likely that in these dogs such a state existed because of a previous streptococcal infection.

Constant and significant structural changes occur in the experimentally produced nephritis in dogs with streptococcus scarlatinae or its toxic product. The lesions are primarily glomerular and interstitial, depending upon the character of the material employed. For instance, the glomeruli are first affected where the toxic principle in the form of killed culture or "lysate" alone is used, regardless of whether the injection is made intravenously or intraperitoneally. While as previously reported[8] an interstitial infiltration of lymphocytes, either preceding or occurring simultaneously with glomerular lesions, occurs in the renal stroma of animals inoculated with living culture, and in which a generalized infection has developed.

The acute interstitial lesion is an infiltration of the intertubular tissues with cells of the lymphocytic variety. As a rule the neutrophiles are absent or only few in number; however, in some of the more advanced lesions they occur but are not as numerous as the lymphoid cells. Associated with the interstitial lesions are viable streptococci which are readily demonstrable in stained sections and recoverable in pure culture from the fresh tissues.

The absence of fibroblasts or any other evidence of stromal activity in the early interstitial lesion is significant since it indicated that the lymphocytic infiltration is a true host reaction to the injurious agent and therefore not reparatory, from which it may be inferred that acute interstitial scarlatinal nephritis of man is the same kind of reaction.

On the other hand the killed culture or its toxic product produces primarily lesions of the glomerular capillaries in consequence of which the vascular loops become occluded with thrombi and later adherent to Bowman's capsule. Other glomerular tufts become enlarged through the appearance of numbers of endothelial cells in the lumen of the capillaries. Bowman's capsular spaces generally contain blood in the form of hyalin masses, also albuminous material and desquamated epithelium. Later, in those capsular spaces where hemorrhage has occurred, early proliferation ("crescent" formation) is noted. All these structural changes cause the glomeruli to undergo further and more serious alteration through replacement of the destroyed capillary loops by fibrous tissue.

While alterations in the tubular epithelium are not an early feature in either the glomerular or interstitial type of experimental streptococcal nephritis, they are affected later in the process when epithelial degeneration appears, especially for the epithelium of the convoluted portion of the tubule. Here the lining cells become swollen through the presence of fluid, granules, fat and hyalin droplets. Often the lumen is filled with blood, desquamated epithelium, granular and hyalin casts.

It seems likely that injuries to the glomeruli occasioned by the streptococcal toxic product accounts for the most, if not all, of the urinary abnormalities since albumen, bile, blood and the substances comprised in casts commonly appear simultaneously with certain structural changes that are confined to the kidney tufts. The dye elimination reveals the fact that the chlorides are normally filtered through the glomeruli and that the tubular epithelium has little or no excretory power for this salt. There is considerable evidence to show that the normal tubular epithelium is concerned mainly with the altering of the filtrate from the glomeruli through selective absorption by the lining cells. It is further to be remarked that uric acid secretion was not effected in the animals of the experiment though in all of them there was a marked glomerulo-nephritis without structural changes in the tubules. Thus it would seem that the tubular epithelium and not the tufts has to do with the concentration of glomerular filtrate, selecting out and turning back into the circulation water, chlorides, etc., since they always appear histologically normal where the glomeruli are badly injured.

Dogs with marked acute glomerulo-nephritis and no tubular changes excrete relatively little urine as compared to the normal, indicating that the function of the tubular epithelium is unimpaired. Albumen and blood, undoubtedly, have their origin in the glomerular tufts as these substances occurred only where the capillaries were injured. Combined glomerular and tubular lesions did not quantitatively affect these abnormal substances in the urine. Albuminuria and hematuria

always signified well defined alterations in the capillaries of the tufts which was confirmed by histopathological study. Casts were numerous and early in the streptococcal glomerulo-nephritis, because of the injured capillary tufts from which presumably these substances are derived, and the fact that they are aided in their formation in the lumen of the tubules through the abstraction of water by the normal tubular epithelium.

Dogs in whom there was induced an acute glomerular nephritis with the toxic product of streptococcal scarlatinae, after a period of weeks, returned to a functional normal even though the microscopic study of the kidney sections still showed the persistence of glomerular and tubular injuries, both acute and chronic. The ability of such animals to regain a normal function, under these circumstances depended apparently not upon regeneration but upon the fact that much of the renal parenchyma had escaped injury and was adequate for the carrying on of the renal function that is consistent with health. Dogs that were unable to effect a return to "functional normal" after they had shown all the clinical evidence of an acute glomerular nephritis and finally succumbed, can be interpreted as those in whom the primary effect was severe and involved too great a number of glomeruli. These dogs showed the functional expression and structural changes incident to chronic diffuse nephritis.

Summary

The results of the experiments with dogs show that the toxic product of streptococcus scarlatinae whether introduced intraperitoneally or intravenously has a selective action upon the malpighian tufts, causing commonly a hemorrhagic type of glomerulonephritis. Secondary changes of a retrograde character occur for the tubular epithelium, but more especially the epithelium of the convoluted portion which is not regenerated where the corresponding glomerular tuft is destroyed.

Four animals died in three to four days after the first injection of the "Lysate" from an acute hemorrhagic glomerulo-nephritis. The remaining 10 dogs of the series lived through the entire period of observation (one to six months); however, they were all quite sick from one to three days following each injection, as was manifested by vomiting, anorexia, fever and the abnormal urine findings.

The acute renal histopathology in all the animals corresponded to that noted for scarlatina in man, and also to the nephritis induced in the rabbit with this nephrotoxic agent which was previously reported by Duval and Hibbard.[9] The acute glomerular lesion is often multiple and varied, ranging from a simple dilatation and engorgement to hyaline thrombi formations, endothelial necrosis and hemorrhage into the capsular space. Lesions of a degenerative character occurred for the epithelium of the convoluted or proximal portion of the tubule, and are apparently dependent upon and secondary to changes in the corresponding glomerulus. Obstructive and destructive injuries to the capillary tuft seem necessary and responsible for interstitial reparatory processes which lead eventually to chronic diffuse nephritis.

The "killed" culture of streptococcus scarlatinae acted in the same manner as the "lysate" in the production of the nephritis, and regardless of whether introduced intraperitoneally or intravenously. A single large dose of the streptococcal nephrotoxin often caused a fatal acute hemorrhagic glomerulo-nephritis. Furthermore, dogs surviving the acute nephritic effect of a single dose of toxin developed chronic diffuse nephritis weeks and months afterwards. The living streptococcus induced in the dog when administered intravenously or intraperitoneally, in addition to glomerular lesions, an interstitial nephritis that is characterized by an intertubular lymphocytic infiltration.

Functional alterations occur before or simultaneously with the earliest appearance of structural changes in the kidney. Casts in the urine, particularly fine granular, are indicative of impaired glomerular function which increases as the capillary tuft injury becomes intensified.

The experimental nephritis induced in the dog with streptococcal toxic product has afforded the opportunity to trace the progress and relationship of the various anatomical changes incident thereto, and to correlate these with renal physiological disturbance expressed by abnormal substances in the urine.

Bibliography

1. Duval, C. W., and Hibbard, R. J.: Jour. Exp. Med., 1926, XLIV, 567.
2. MacNider, Wm. de B.: Jour. Exp. Med., 1921, XLIX, 387.
3. Birkhang: Jour. Infec. Dis., 1927, 40, 549.
4. Longcope, W. T.: Jour. Exp. Med., 1913, XVIII, 678.
5. Long, E. R., and Finner, L. L.: Amer. Jour. Path., 1928, IV, 571.
6. Heplar, O. E., and Simonds, J. P.: Amer. Jour. Path., 1929, V, 473.
7. Longcope, W. T.: Jour. Clin. Invest., 1927, V, 7.
8. Duval, C. W., and Hibbard, R. J.: Proceedings Soc. Exp. Biol. and Med., 1927, XXIV, 876.
9. Duval, C. W., and Hibbard, R. J.: A. M. A. Jour., 1926, 87, 898.

ROUTINE LABORATORY EXAMINATION OF SURGICAL TISSUE*

CLAYTON E. ROYCE, M.D.,
Jacksonville.

"Do you want pieces of this stomach for microscopic?" "Surely, five or six of them." "What for? You know it's cancer anyway."

This conversation took place between pathologist and interne over the post-mortem table concerning a massive carcinoma of the stomach. The diagnosis had been made antemortem; was only too evident to inspection, and the younger doctor just failed to grasp the idea that it might be necessary or desirable to study the tumor microscopically. A similar frame of mind in some surgeons may explain why so much surgical tissue is disposed of without being reviewed and catalogued by the pathologist.

The American College of Surgeons, although admitting a lack of even approximately correct data, feel justified in assuming that few hospitals outside of the two thousand on the "Approved List" require pathological examinations or reports. There are approximately three thousand six hundred hospitals of 25 beds and over, in the United States, out of a total number of 6,852.

It may be shown that the careful gross and microscopical examination of surgical tissue has a definite value to the patient, the surgeon, the pathologist, and the hospital. Granted that he has already, or must inevitably acquire, a first hand knowledge of gross pathology superior perhaps in some respects to that of the laboratory man; unless he has co-incidentally carried on microscopical studies, he cannot readily visualize what he sees in terms of cellular pathology. In the absence of these personal studies the surgeon can but improve and strengthen his surgical judgment in the presence of pathology by forming the habit of correlating his operative observations with the detailed report of the pathologist.

To the patient a histological diagnosis is of utmost importance from the standpoint of prognosis. If the person who has suffered the removal of some part of his or her anatomy, is hospitalized again, the operative record will be in eager demand by the physician in charge, no matter what branch of the profession he may be connected with. This record cannot be entirely satisfactory unless it includes a histological diagnosis supported by descriptive data obtained by careful gross and microscopical examination.

The pathologist can measure his efficiency only by the amount of pathological material he carefully analyzes in gross and microscopical detail. More than this, he must keep in touch with normal pictures by every post-mortem opportunity.

The hospital relies on its records. The American College of Surgeons expects those records to contain a complete and detailed gross description of every pathological specimen, and a similar type of report on all tissue examined microscopically. This presupposes a description of the appearances and structural elements of the specimens, so far as is discernible with the naked eye or the microscope. The fitness of the surgical staff of the hospital is, in a degree, measured by the records of surgical tissue made in the laboratory.

In order that the laboratory examination of surgical tissue shall be most effective, a systematic routine must be carried out. To insure the best histological pictures the tissues should be placed in a preservative in the operation room as soon as removed. If seen shortly afterward by the pathologist, the gross appearance is not interfered with. When preserved in 10% formalin the pathologist may if desirable, restore the natural color by immersion for a short time in 80% ethyl alcohol. The record of the history, physical, roentgenological and other examinations should be available. The gross examination of tissues is carried on by inspection, mensuration and palpation. For the purposes of unbiased description, it is better if the specimen be regarded as an indifferent object, and considered as to its size, shape, color, and consistence using anatomical and pathological terms only as convenient to denote the relations of the various structures. The microscopical examination should take note of the structural units and their relative prevalence to each other, and to the amount normally found. Unusual cell characteristics and arrangements must be sought for. The presence of cells foreign to the part, their identity, source, numerical relationships and distribution are of necessity considered.

Repeated observations of this character can be of benefit to the observer, but if the result is but a dogmatic statement of diagnosis, much of the value of this work is lost to other interested parties. Further, a detailed routine of report can but increase the thoroughness and accuracy of the observer.

*Read before the 57th Annual Meeting of the Florida Medical Association, Pensacola, May 6, 7, 1930.

Records of two varieties should be made. These are descriptive and material. The former, just like the observations, should be purely objective and sufficiently detailed to warrant a diagnosis in the mind of the reader. The description of microscopical appearance should explain and supplement the record of the gross appearance.

Material records may consist of the actual specimen prepared to display the most important features and render as nearly as is consistent with permanent preservation, the appearance of the fresh material. The histological preparation, usually made as a matter of course, constitutes a practical and invaluable material record which, properly filed and cross-indexed, is available not only for check and reference, but for series study. Next in importance to material records of the kind mentioned, are photographs of the gross and microscopical preparations. For the record of the specimen in gross, photographs are economical of time, materials, and space. They supplement any descriptive effort, and are at once available for publication. Photomicrographs of selected fields emphasize important points, and may form to many a more helpful demonstration than the actual section.

In order that the report may reach the surgeon while the case is still hot, the examination must be made promptly. In the great majority of instances reports may be made within 24 hours following the receipt of the specimen. This presupposes the adoption of a suitable technique for the histological preparation.

Of the various methods available for histological preparation, choice should be made with reference to rapidity, accuracy and permanency. The freezing method can be made to answer all these requirements more satisfactorily than any other single means. A close rival is the free hand section method of Terry; using his neutralized polychrome methylene blue stain. This technique supersedes all in rapidity, gives beautiful microscopical detail, permitting study with the oil immersion lens. The stain, however, soon diffuses and fades. A generous offset to this disadvantage is the fact that the sections are so easily, rapidly and economically made that study may be made of different parts of the specimen, and any particular section may be decolorized and restained as often as desired. The main point of distinction is that the comparatively thick sections are stained on one side only and then to no greater depth than the thickness of a cell. The remainder of the section permits the passage of light so that the effect is that of viewing a section thinner than that usually obtained by any of the other methods. Accuracy is increased by the facility with which many parts of the specimen may be studied. Characteristic portions may be better selected from which to derive the sections to be filed as a record.

In the interests of accuracy too, if not for diagnosis, certainly for study of the natural history and topography of diseased tissue, mention must be made of the microscopical preparations of entire organs. Wainwright, by means of sections of the entire breast and structures removed in the radical amputation, has shown the extensiveness of breast carcinoma; the frequent involvement of both pectoral muscles and the almost constant invasion of a lymphnode; the very presence of which was previously unsuspected. Sections of this sort are made from parafine imbedding, using acetone in place of alcohol in sufficient amount to completely dissolve out all of the fat.

There seems no good reason why French's eosin-methyl azur stain should not replace the time honored hemotoxylin and eosin for routine permanent mounts. The stains are constant in value and the technique applicable with slight modification to formalin or Zenker tissue. The pictures are brilliant, the intracellular detail clear cut, and bacteria are stained perfectly.

The precise cataloging of certain tumors, particularly those of the nervous tissue, requires practice of the highly specialized technique of neuropathology and cannot be considered routine study.

The routine handling of surgical tissue requires attention to indexing the records. Where the specimens are wholly from house cases, the case number should be the laboratory number as well, and the permanent file numerical. By some one of the devices for attaching the slides to the laboratory card, the slides and cards should be filed together so that the written and the material record are available at once. Cross-indexing by organ and lesion follows as a matter of course.

In summarizing, I would emphasize that much surgical tissue is being discarded without examination, and point out the desirability of undertaking routine laboratory examinations of such tissue. The laboratory examination should be productive of a descriptive record; not merely a yes or no; an "itis" or an "oma." The material

record is essential as a matter of re-examination in the light of subsequent developments. Promptness in report is an integral factor of the value of the examination, and accuracy need not be jeopardized in securing it.

In conclusion, proper laboratory study of surgical tissue, productive of descriptive and material records, is essential to the best interests of the patient, the surgeon, the pathologist, the hospital and the profitable study of disease.

REFERENCES

Terry, Benj. T.: Journal of Laboratory and Clinical Medicine, Vol. xiii, No. 6, p. 511.

DISCUSSION

Dr. W. W. Kirk, Jacksonville:

This paper is very enlightening and interesting, and I note, as is frequent in papers of this kind, a strain of argument throughout. The pathologist very frequently has to adopt an argumentative attitude toward a number of surgeons and practitioners in his town. We always feel that if we hold out long enough we can encourage more men to investigate their cases carefully. Personally, I have never seen why a man will have his patient spend $15 to $25 on the anesthetic, and will leave out the more vital problem in the long run—that of finding out just what is finally wrong with the patient.

There are a number of ways to make this service more attractive to the surgeon, but we must realize our own limitation. The main fault very frequently is that the pathologist does not give a definite answer to the pathological findings. He will say, "This is probably cancer" or "This is a precancerous condition." The more definite we are the better will be the cooperation between the two departments.

Frequently, a rapid diagnosis, as Dr. Royce emphasizes, is essential. With the improved method of frozen section a diagnosis can be made on 90% of the specimens within thirty minutes after removal from the patient, if necessary.

I also think if a number of surgeons would become interested in the laboratory department of the hospital, and with the newer preservative methods for diagnostic study having been greatly improved (and if the specimens could be seen at the time of operation by the pathologist when convenient), that value could be obtained in all lines of work. There are so many cases in which the condition looks benign and is malignant. Very frequently we see cases where the malignant condition shows up several years afterward when it is too late to do anything of service. Probably a number of patients cannot afford this additional service, but it very frequently occurs among those who could have paid.

I would like to emphasize again the importance of Dr. Royce's paper and his elaboration on this subject. I think it is very timely.

(*Continued on page 567*)

THE SURGICAL TREATMENT OF CARCINOMA OF THE MAMMARY GLAND*

JOHN S. HELMS, A.B., M.D., F.A.C.S.,
Tampa.

From the Surgical Division of the John S. Helms Clinic.

A comprehensive dissertation upon the subject will not be attempted in this discussion. An author's prerogative of discussing those phases of a subject matter of which he has had most experience will be taken advantage of by the writer.

Digressions from the strict statement of the subject will be made only so frequently as may be necessary to lead to a clear concept as to treatment.

Due to the fact that there seems to be but little local unanimity of practice or opinion concerning the treatment of carcinoma of the mammary gland and also due to the fact that no attempt up to this time has been made to unite our efforts upon some accepted more or less standardized plan, I make no apology for making this discussion more or less academic and elementary.

Mammary gland cancer is one of the oldest of known diseases. Statistical data, although not always to be depended upon as absolutely reliable, show an enormous comparative prevalence of the disease as well as its wide distribution. Such data show a steadily increasing incidence throughout the world. My own experience comprises about 500 cases. Unfortunately, accurate records in the earlier cases have not been kept; therefore, exact statistical data cannot be given. However, I feel that my experiences as to diagnosis, methods of treatment and final results compare fairly favorably with those of the average clinic.

Due to the efforts of many beneficent agencies scientifically directed and otherwise, to educate the public upon the danger of cancer and the importance of seeking early and competent advice

*Read before the Hillsborough County Medical Society, December 3, 1929.

upon any lesion of any part of the body (the mammary gland in particular), early diagnosis and early surgical removal of pre-cancerous and cancerous lesions have increased the apparent incidence of carcinoma of the mammary gland, but on the other hand have greatly lessened the actual mortality of the disease.

Diagnosis

A few words may be said about diagnosis. A clinical diagnosis is often difficult to make. The history is important, particularly as to trauma or acute infections of the breasts. Whether or not there are any causal relations between these former conditions and the development of carcinoma is difficult to state, but quite a large percentage of cases of cancer of the mammary gland give a history of such experiences.

Given a tumor of the gland, usually accidentally discovered, which is hard, monolocular, adherent to the skin or underlying fascia, painless as a rule, the nipple retracted or directed at an angle which is at variance with the normal, with or without palpable axillary nodes, one can feel fairly well assured that one is dealing with a carcinoma. One or several of these factors may be absent and yet the case may be cancer. The positive diagnosis must finally rest upon the microscopic findings. Not only the positive diagnosis of cancer but also the kind of cancer and the grade of malignancy are determined by the competent pathologist.

The diagnosis of carcinoma must be differentiated chiefly from simple hematoma, fibro-adenoma, benign cysts of different types, particularly the blue-domed cyst of Bloodgood, chronic or acute mastitis, either diffused or monolocular, inflammatory masses of low grade infections, gumma and tuberculosis. Where differential diagnosis is difficult for any reason, a biopsy should be restorted to for a frozen section diagnosis.

It is good practice in all cases of doubtful clinical diagnosis to inform the patient and interested friends frankly of the situation and consent should be had to proceed with the radical operation under general anesthesia, immediately following a biopsy diagnosis of cancer under local anesthesia. Under no circumstance should the biopsy be done without facilities for immediate frozen section diagnosis by a competent pathologist. There should elapse no interval of time between the biopsy diagnosis and the radical operation in case of cancer. The reasons for this are obvious and of the greatest importance.

In passing I may speak of the value of transillumination of the breast as an aid in the differential diagnosis of breast lesions. Max Cutler presented this method in a recent article in which he states as his twelfth conclusion that: "Transillumination is a simple, safe, and valuable aid in the interpretation of pathological conditions in the breast and is recommended as a useful diagnostic procedure in the routine examination of this organ."

One may designate the operable cases by stating the converse. By the term operable we mean to convey the idea of radical operation where it does not involve too abnormal immediate risk to life and there exists a fair chance for cure or great prolongation of comfortable life, judgment to be made upon the clinical evidences. These clinical evidences cannot be stated either positively or negatively in accurate standardized terms in all cases, but generally speaking, cases which show evidences of lung metastases or metastases of any distant inacessible organ, cases with local progression to a degree of massive tumor formation with extensive skin involvement or massive infiltration into chest muscles with fixation, cases with massive metastases in the axilla and more distant lymphatic glands such as the supraclavicular and mediastinal glands and finally cases of long standing, which show evidences of weakness, dehydration, emaciation and generalized cachecia, should not be subjected to radical operation. It may be necessary at times to subject some of these groups to more minor surgical procedures to add to comfort by relieving them of certain disagreeable symptoms. Most cases without distant metastases and without apparent rapid progression though they may come late should be given a chance with a radical operation. A percentage of these cases may fall into one or two grade malignancy and have a chance for cure, though they be late.

A clear understanding as to what constitutes a radical operation when the term is applied to carcinoma of the mammary gland should be understood. Since the epochal work and teachings of Halstead and Willy Meyer upon the surgical treatment and the teaching of Handly's permeation theory of the spread of carcinoma of the mammary gland, there have been no changes except as to minor details of technique. It is a curious fact that both Halstead and Meyer simultaneously devised their original operations and

changed minor details of their original technique, which made their operations both less formidable and less dangerous. The radical operation for cancer of the breast has been fairly well standardized by Halstead and Willy Meyer's work. It must always consist as a minimum of such incisions as will permit the removal of an amount of skin sufficiently distant from the lesion to insure as nearly as possible removal of all invaded skin. This will depend upon the type of cancer and its degree of progression and does not mean in the average case that skin grafting will have to be resorted to. The skin incision should give ample room for the complete removal of the pectoralis major and minor muscles, all fat and lymphatic glands from the axillary space, the entire breast and the upper border of the anterior sheath of the rectus muscle.

Anatomical Considerations

There are certain anatomical considerations involved in the operation which make for completeness in so far as the greatest assurance against metastases and for final cure as also for safety from immediate danger in the operation as well as for conservation of function of the arm and forearm.

The most important anatomical consideration as regards recurrence either local or metastatic is the distribution of the lymphatic system involved in carrying cancer cells to the immediate and remote environs. Generally speaking the lymphatic vessels and glands in this region are distributed along the fascial planes. Monrad claims that they never penetrate the muscles. This opinion was based upon experiments carried out by injection of methylene blue solution into the breasts of one hundred infants up to two and one-half years of age. The lymphatic channels are the first routes for dissemination of cancer cells from the breasts. In order to get a clear conception of the lymphatic system connected with the breast so that the fundamental principles of the radical operation may be understood; it may be stated that there are three sets of lymphatic vessels which may carry cancer cells to the environmental groups of lymph nodes.

The axillary trunks are the chief channels for such dissemination. They are two in number and pass from the outer, upper and under segments of the breast along the outer border of the pectoralis major muscle to the axillary nodes.

The intermuscular trunks which drain the under surface of the breast pass through the pectoral fascia, over and through the pectoralis major muscle and lead to nodes between the pectoralis major and minor muscles and the subscapularis group of glands.

The intercostal lymphatic vessels pass from the inner and outer segments of the breast through the pectoralis major and intercostal muscles to the sternal nodes lying behind the sternum in the parasternal line. These vessels may also carry metastases to the opposite axilla.

The axillary groups of lymph nodes into which the first two sets of lymphatic vessels drain may be divided into three groups. The pectoral group lies between the pectoralis major and the serratus anticus muscle receiving drainage from the breast and chest wall.

The humeral group lies along the axillary vessels; the highest of these, the subclavian, lies behind the costocoracoid membrane, Mohrenheim's space. The lymph vessels of the arm drain into this group. Their vessels anastomose with the other two groups.

The subscapular group lies along the subscapular vessels and on the posterior wall of the axilla.

Generalization of the disease spread takes place after metastasis has reached the axillary nodes and muscular aponeurosis.

Other anatomical considerations make for the immediate safety of the operation and preservation of function of the arm, forearm and shoulder of the side affected.

The axillary space contains the most important structures aside from the breast itself to be removed. It also contains the most important structures to be preserved from a safety and functional standpoint. This space may be said to be bounded regionally; in front by the skin, superficial fascia and fat with connective tissue network, the pectoralis major and minor muscles; behind by the latissimus dorsi, teres major and minor and subscapularis muscles; inner side by the chest wall, ribs, serratus anticus and intercostal muscles; above by the coracobrachialis, long head of the biceps and the deltoid muscles. Along the upper border of the pectoralis major between this muscle and the deltoid lies the cephalic vein. The brachial plexus, the axillary vein and artery traverse the space in an oblique direction just below the coracobrachialis muscle. The course of the long thoracic and the long subscapularis nerves runs across the posterior wall of the axillary space in a longitudinal direction.

Technique

The basic principle of the technique of the radical operation is the dissection and removal en bloc of the glands, fat and fascia of the axilla, the pectoralis major and minor muscles, the entire breast and sufficient amount of skin.

The incision may be made to suit the individual case depending upon size, location and other factors connected with the tumor mass. There are many types of skin incisions devised by as many different surgeons. My own preference for the average case is the ellipse beginning at about the middle of the deltoid above and extending the incision downwards over the pectoralis muscle in the direction of its fibres, the inner and outer lines of the incision pass about three or more inches from the summit of the tumor mass on each side. The incision finally extends over the upper border of the rectus muscle.

The inner skin flap is now undercut upwardly and inwardly over the lower border of the deltoid, below the clavicle and along the margin of the sternum. The outer skin flap should be undercut to the outer border of the latissimus dorsi muscle, which is now exposed up to the coracobrachialis muscle which passes between the humeral attachments of the latissimus dorsi and the pectoralis major. The cephalic vein which marks the dividing line between the deltoid and the pectoralis muscles should now be identified and exposed for about two or three inches along the upper pectoralis major border. This vein should be carefully protected from injury in case of injury to the axillary vein. The outer border of the pectoralis major should now be exposed and the index finger of the left hand may now be passed underneath this muscle to the point of its division from the deltoid marked by the cephalic vein. The muscle is separated from its humeral attachment, being divided close to the bone. It is then turned downward and the axillary vein lying below the coracobrachialis muscle is exposed in part. The outer border of the pectoralis minor is now exposed and the finger passed underneath and the muscle separated from its attachment to the corocoid process and divided through its fibrous attachment. The acromiothoracic vessels may be injured in separating and dividing the pectoralis minor muscle unless care is exercised.

The axillary vein is now completely exposed. The axillary artery lies behind, the brachial plexus lies behind and below this vein. By sharp dissection along the lower border of the axillary vein the fatty tissue with lymph nodes are dissected downward in one piece. Care should be taken to preserve intact the long subscapularis or thoraco-dorsal nerve and vessels and the long thoracic nerve. The long subscapularis nerve supplies the latissimus dorsi muscle, while the long thoracic supplies the serratus anticus muscle. It is sometimes called the respiratory nerve of Bell. The latissimus dorsi, the teres major and teres minor and the subscapularis muscles are now exposed in the posterior wall of the axilla and the space has been cleared of all fatty and fascial tissue and lymph nodes, the axillary vein and artery and the axillary plexus are uncovered and freely exposed.

The mass of axillary fat, the pectoralis major and minor muscles and the breast are now to be removed en masse. This is best done by directing the dissection from behind by pulling the combined mass towards the midline placing the line of cleavage on tension. In this way the perforating branches of the internal mammary artery are approached from below and are more easily controlled, lessening hemorrhage.

After thorough hemostasis has been carefully carried out, the skin flaps, which should have been undercut in such a way as to leave only enough underlying fat to insure proper circulation, should be brought together with a few properly placed tension sutures with the necessary approximation skin sutures or skin clips. A short drainage tube of pure soft para rubber should be placed through a stab wound at the most dependent part of the wound near the axilla. A snugly fitting, gently compressing dressing should be applied, leaving the arm free to be moved early. The drain should be removed in about ten to twelve days.

Much has been said about the choice of dessecting instruments in these cases. Individual opinions seem to be divided as to whether the knife, cautery or the high frequency acusector should be used. It would appear that the cautery or acusector should be the instruments of choice at least in the more advanced cases. This opinion is based upon the theory of the autogenous transplantation of cancer cells during the operation where agents that are not destructive to cancer cells are used in dissection. The cautery is probably the instrument of choice, at least until the acusector is so perfected that the muscular contractions attending its use may be obviated. Hemorrhage is lessened by the use of the cautery.

ANESTHESIA

Nitrous oxide with oxygen may be considered the anesthetic of choice for this operation. It must be remembered that ethylene is to be avoided when the use of either cautery or acusector is contemplated. Sodium iso amylethyl barbiturate may be used intravenously, provided respiration anesthesia for any reason is contraindicated.

The preoperative preparations and post-operative treatment do not differ from those carried out in cases of major surgery in general.

It should be borne in mind that the technique should be carried out with the greatest consideration for asepsis and hemostasis. Shock usually ensues only in cases of undue loss of blood and prolongation of the operative time.

Since the operation is more or less formidable and involves a large amount of dissection, care should be taken to assure one's self that the subject is not a diabetic. Diabetics do not endure radical breast amputations well unless the blood sugar is carefully kept within normal limits.

The immediate operative mortality should be less than one per cent. We have had no operative mortality in our series.

Prognosis as to cure after radical operation is dependent upon several factors. The early primary cases where the disease has not spread from its primary focus are the most favorable. The grade of malignancy is probably the greatest factor as respects final cure other factors being equal in comparative cases.

If we are to make progress in the treatment of mammary gland cancer, accurate records must be kept in which all facts are accurately recorded. Pathological findings must be recorded in all cases. The pathological reports should include a record of efforts at grading the malignancy. The type of treatment employed, whether radical operation or incomplete operation, should be stated. If radiation or other form of treatment with or without operation, radical or incomplete is used, exact statements concerning same should be recorded. A five-year follow-up should be made in all cases that survive this period.

The final end results expected from treatment may best be given by quoting the summary of a report recently made to the American College of Surgeons by its committee on the treatment of malignant disease. This report is as follows:

1. The study of 536 cases of cancer of the breast from 9 different hospitals in 1918, 1919, and 1920, recorded and classified in a uniform manner on a minimum five-year end-result basis and supported by pathological evidence of the diagnosis of cancer, yields the following results:

2. Twenty per cent of all cases entering the hospital are alive and well at the end of five years after treatment.

3. Twenty-five per cent of all primary cases are alive and well at the end of five years.

4. Twenty-eight per cent of the "operable" cases are alive and well at the end of five years.

5. The early favorable cases without axillary involvment give 57 per cent of successful results.

6. The more advanced cases with axillary glands involved gave only 16 per cent of successful results.

7. The "operable" cases, with remote metastases, are all dead.

8. Of the cases entering the hospital with recurrence after operation only 3 per cent are alive and well.

9. No successful results were obtained without operative treatment.

10. In primary cases the best results (29 per cent) were obtained by the standard radical operation, with or without prophylactic X-ray.

11. In primary cases incomplete operation with or without X-ray gave only 10 per cent success.

12. In primary cases X-ray alone gave no success.

13. The results of the standard radical operation with removal of both pectoral muscles (34 per cent) were superior to those in which the pectoralis minor was not removed (26 per cent).

14. The addition of pre-operative or post-operative prophylactic X-ray treatment to the radical operation gave no greater proportion of five-year successful results.

15. Prophylactic X-ray did not prolong life in the unsuccessful cases.

16. Prophylactic X-ray did not diminish the incidence of local recurrence in the field of operation in unsuccessful cases.

17. There is no evidence in this series of cases to support the contention that prophylactic X-ray is of value as a supplement to operation in cases of cancer of the breast.

18. The value of X-ray in the treatment of recurrence after operation is established.

19. Three patients are alive and well over five years as a result of X-ray treatment of recurrence. In one of these excision of the recurrence was performed, in addition to X-ray treatment,

but in no case was the recurrence proved by pathological examination.

20. Patients with recurrence treated by X-ray lived longer than those in which X-ray treatment was not given.

21. The most marked benefit from X-ray treatment was obtained in the cases of local recurrence in the field of operation or in the axillary region.

22. Advanced cases with remote metastases were little benefited by X-ray treatment.

A COMPARATIVE STUDY OF PROPHYLAXIS AND THERAPY OF THE ACUTE INFECTIONS OF FLORIDA CHILDREN*

WM. MCKIBBEN, M.D.,
Miami.

The pediatrician and family physician constitute the first line of defense in the control of communicable diseases. They have a legal obligation to report and a moral obligation to teach.

Regulations from health authorities tend toward simplification, investigation being substituted for police power, a thorough cleaning replacing terminal fumigation and "air tight" domestic quarantine. The doctor should meet these advances open-minded, without prejudice, avoiding uninformed criticism.

It is the general practitioner who can help so effectively to reduce the morbidity and mortality rates of the communicable diseases, by instructing the average intelligent individual of today, who respects his doctor's opinion over all others. The physician should be more aggressive in urging immunization, active and passive, against these infections.

Clinical infection is the result of the overcoming of the bodily defenses by invading pathogenic organisms; it is quantitative as well as qualitative; the amount as well as the degree of virulence of the invader is a determinant as well as the degree of resistance or immunity of the invaded.

An organism's virulence depends on the quantity of toxin it produces, and upon its ability to multiply and to penetrate the body's defenses. Most bacteria have a special affinity for cells of certain parts of the body, and produce their characteristic disease only when they reach and multiply in such a focus. Thus the meningococcus, dwelling in the masopharynx, produces serious illness only when it penetrates to the meninges. But streptococci and tubercle bacilli proliferate in any part of the body.

The number may increase faster than the specific defenses can kill them, yet the body can form substances that neutralize the toxin, so that a "carrier condition" results.

Exotoxins or true toxins, extracellular and soluble, are the toxins secreted or excreted by the organism, e. g., the toxins of diphtheria or of tetanus.

Endotoxins, the toxic products of most organisms, are obtained by extraction or by disintegration of the cell.

Immunity is a specific resistance dependent upon the presence of certain ferments in the body fluids, and upon the ability of certain cells to ingest and destroy invading organisms (phagocytosis); it is dependent upon the non-specific as well as the specific opsonins in the blood. Opsonins are substances in the blood which prepare a bacterium for phagocytosis.

These specific substances are mainly concerned in immunity. General "resistance" or "good health" has never proven a reliable defense against specific infections, but doubtless favors recovery, particularly in the common infectious diseases of childhood.

Specific immune substances are either antitoxic or else antibacterial. The relationship between the exotoxins and their antitoxins is very different from that of the endotoxins and the substances which neutralize them. Antitoxins combine with the corresponding toxins in a multiple scale; one part of serum neutralizes one part of toxin, one hundred parts approximately one hundred parts.

Not so the endotoxins; the amount of serum must increase much more rapidly than the amount of filtrate and at a certain point neutralization becomes impossible no matter how much serum is added.

The immune substances of the body are grouped and spoken of as antibodies, and, except for the antitoxins and perhaps the precipitins, are mostly antibacterial. Besides those mentioned they include the agglutinins, the opsonins and the bacteriolysins; the agglutinins clump bacteria, the opsonins prepare them for phagocytosis, and the bacteriolysins cause their dissolution—like a process of digestion. These are all for the most part specific for the homologous antigen or antibody

*Read before the 57th Annual Meeting of the Florida Medical Association, Pensacola, May 6, 7, 1930.

producer, although they exhibit their properties in a lessened degree for closely allied species, e. g., the injection of killed typhoid organisms will produce not only agglutinins for the typhoid bacillus but also in smaller amounts for the paratyphoid bacilli A. and B.

An antigen is an antibody producer. Inject a protein and it will stimulate that animal body to produce antibodies to that protein, if the dose employed is not big enough to cause death. Thus the injection of diphtheria toxin stimulates the body to form antitoxin and typhoid bacilli to form typhoid bodies. Owing to the difficulty in determining a dosage that would cause a clinical infection, killed bacteria rather than living ones are chosen. Due to contact with antigens in doses so small as to produce only subclinical infections, people are acquiring immunity "naturally." Such contact increases the amount of non-specific and group antibodies.

Resistance, immunity and susceptibility are only relative, not absolute.

Immunity is natural and acquired. Natural is that inherent in the species or race. Racial immunity, however, is less marked in humans than in lower animals; a relative immunity is noticed in those races exposed to a disease for generations, e. g., tuberculosis and measles. But the high mortality in these two may have been due to unintelligent care. This natural immunity is inherent in everyone. If specific, it is passive and effective, and dependent upon the antibodies elaborated by the mother. Non-specific natural immunity is effective against only small doses of less virulent organisms, forming the base for acquired specific immunity with or without symptoms. This acquired, natural immunity is active; that is, the cells of the individual's own body elaborate the immune substances—are active in their production. Active may endure for years or a lifetime, in contrast to passive immunity which lasts only for weeks or months. An attack of a disease or of a closely allied or modified disease (cowpox, smallpox), producing an active immunity, has been recognized since the time of Jenner. Immunity may be acquired artificially, passively (diphtheria antitoxin to contacts) and is immediate, or actively (diphtheria toxin-antitoxin) and is slow and more permanent.

Thus comes the physician's chance to reduce mortality by advocating only those practical prophylactics backed by controlled experience. Even if there is still doubt as to the exact value of a vaccine or antitoxin he might be unwarranted in refusing to use it, if no harm can result in its use. Yet he would not be justified in recommending whooping cough vaccine as a routine as compared to smallpox vaccination or toxin-antitoxin. It is essential too that his technique be brought up to date, e. g., the multiple pressure method of vaccination. These preventives should be given in early infancy for many reasons. He must not forget that it is during the first few years of life that diphtheria is most deadly. In spite of the early use of adequate doses of antitoxin, the fact remains that one-sixth to one-fifth of the children who contract diphtheria before they are five years old, die of it. So select sixth to ninth month for prophylaxis.

There is good reason for believing that dosage of infection is an important factor in determining the severity of the primary disease; this is particularly true of measles. Exposed only once and at some distance, a child will usually have but a mild attack or escape clinical infection; but one exposed repeatedly to massive doses at short distances will have a severe or malignant infection. Therefore isolation of the sick should be insisted upon even though exposure has already taken place; such isolation is the duty of the attending physician regardless of any law or further measure taken by the health department to protect others outside the family.

Reporting to the Board of Health is necessary, not that they put up a placard alone, which is time honored, respectable, impresses the laity, and is a gesture in response to the demand that the Board of Health "do something;" but there are better reasons for requiring reports, and they may not involve restricting or advertising the affected family at all. The tracing of the sources of infection as well as those possibly infected, is more important than even the strictest "quarantine." Vaccination, prophylactic antitoxin, convalescent serum, vaccines, warning parents of possible dangers, and advancing our knowledge, should be the common functions; the pediatrist and general practitioner to observe and record, the Health Officer to collect, analyze and interpret the tabulated figures. Observations collected from varied sources are not so one-sided; e. g., infectious diseases are more fatal among the poor than among the rich, owing to earlier age, less favorable environment and less prompt and intelligent care.

Therefore, let the physician report for the report's sake, and not be too urgent that the health department "do something about it."

THE TREATMENT OF THE ACUTE INFECTIOUS DISEASES OF CHILDREN

1. CHICKENPOX.

Prevention or control by differentiation of clinical symptoms from those of varioloid by history, age, absence of invasion period, the slight constitutional symptoms, eruption seen most over covered surfaces, macules quickly becoming vesicles; lesions varying in size, superficial with little or no infiltration, vesicles unilocular, collapse and do not become umbilicated; lesions seen in crops, in all stages at the same time, lasting only two to four days, terminating in soft, friable crusts; not influenced by smallpox vaccination.

Exclusion of patient from school until primary scabs have dropped off, or at least twelve days from onset; prevention of contact with non-immune persons.

Prophylactic inoculations and vaccination done early are justifiable only in institutions; better to allow healthy children to take varicella, as it is most inconvenient when adult life is reached.

Immunity can be obtained by intravenous injection of contents of vesicles.

Quarantine—none. Disinfection of soiled articles and thorough cleaning. Lotions: Lotio alba, calamine lotion, carbol. vaseline.

2. DIPHTHERIA.

1. *Preventive Methods of Control of the Infected Individual and His Surroundings.*

(a) Recognition of the disease by clinical symptoms and bacteriological examination from follicular tonsillitis, Vincent's angina, spasmodic croup, scarlet fever and syphilis.

(b) Isolation: Until two successive negative cultures are obtained from nose and throat 24 or more hours apart. Terminated if persistent diphtheria bacilli prove avirulent, or 16 days after onset, with fair safety.

(c) Immunization: Exposed susceptibles, i. e., those found non-immune by the Schick test (those giving a positive reaction) should be at once immunized by antitoxin unless cultured and kept under daily observation by doctor or nurse.

(d) Quarantine: All exposed persons until shown by bacteriological examination not to be carriers.

(e) Disinfection of all contact articles and those soiled by discharges. Air, sun, renovation of sick room.

2. *General Measures.*

(a) Pasteurization of milk supply.

(b) Application of Shick test to all especially exposed persons, such as nurses and physicians and active immunization of all susceptibles, but not within 3 weeks after the administration of antitoxin.

(c) Active immunization with toxin-antitoxin or toxoid of all children by end of first year without prior Schick testing, and of school children with or without prior use of Schick test.

(d) Determine presence or absence of carriers among contacts, and, so far as practicable, in the community at large.

Treatment. Specific.

Even if only clinically suggestive, give one sufficiently large dose of antitoxin immediately without waiting for a bacteriological diagnosis.

UNITS OF ANTITOXIN REQUIRED.
(Park of Willard Parker Hospital)

	Mild Cases	Moderate		
	Subcutaneous	Intramuscular	Severe	Malignant
			Intravenous	
Infants, 10-30 pounds	2,000	3,000	6,000	8,000
(under 2 years of age)	3,000	5,000	10,000	10,000
Children 30-90 pounds	3,000	4,000	10,000	15,000
(under 15 years of age)	4,000	10,000	15,000	20,000
Adults, 90 lbs. and over	3,000	5,000	15,000	20,000
	5,000	10,000	20,000	30,000

When given intravenously, as low as one-half the amounts stated may be used. Cases active and seen later than second day, laryngeal cases, and those complicating the exanthemata, treat as severe. Subcutaneous method may be used for prophylactic and mild cases; intramuscular in gluteal region is better for moderate and moderately severe cases, because simple absorption is rapid, and little risk of anaphylactic shock. In extremely severe or malignant cases where immediate neutralization of the toxin is imperative, use the intravenous method by fontanel, external jugular or median basilic vein, first testing with 0.1 c.c. intravenously; if negative give slowly; if positive shock, give intramuscularly. In older child or adult with history of asthma or previous injections, test with 0.1 c.c. subcutaneous. If severe reaction, give 0.1 c.c. every 15 minutes for 5 doses for desensitization; then 0.1 c.c. intravenously, and if no reaction give whole dose; if symptoms of shock, continue small intravenous doses until desensitized. For the few shock cases use 5 to 10 milliliters of a 1-1000 dilution of adrenalin.

Local Treatment. Ice-collar. Gentle hot soda bicarb. solution irrigation from fountain syringe with rounded glass tip, if patient does not fight it.

General Treatment. Symtomatic: Ventilation, 68° F. moist air by kettle, if laryngeal. Absolute rest in bed with low pillow. Cardiac stimulants of strychnia and caffein. Morph. sulph. 1/48 to ⅛ gr. Enteroclysis of saline sol. for shock and collapse.

Complicating. Paralysis may require gavage feedings, artificial respiration for transient paralysis, proper position in bed and strychnia.

Diet. Nourishing food of high calories, much liquids, medicine dropper, Breck feeder, small amount often, gavage or rectal feedings.

Intubation if retraction of episternal notch and of the supraclavicular space, and pulse disappearing with inspiration; do not wait for exhaustion and cyanosis. Benzoin inhalations. Thick cereals, ice cream fed with head low.

Trachcotomy under local anesthesia if intubation fails.

Nursing. Give nurse 1000 units, if her immunity is doubtful; mild throat spray, face mask, wash hands often and apply alcohol.

Convalescence guarded for at least 21 days. Diet, sun, iron, cod liver oil. To rid throat of persistent organisms local applications are disappointing; Roentgen ray or tonsillectomy, even if culture is positive.

Better to protect children with toxin-antitoxin or toxoid than to take chances on proper treatment with antitoxin, because:

1. Antitoxin may be given too late or in insufficient amount.
2. Laryngeal type may cause asphyxia before medical attendance is called.
3. Nasal diphtheria may be regarded as a cold until it is too late.
4. Sacrifice of school or work and possible bad after-effects (heart).
5. Others suffer inconvenience from quarantine.

Toxoid is toxin treated with iodin or formaline instead of with antitoxin. Advantages over toxin antitoxin are

(a) no serum to cause anaphylaxis

(b) only two doses necessary.

3. Epidemic Encephalitis

Reportable and quarantine maintained; contact children excluded.

Treatment symptomatic.

Auto and convalescent serum intraspinally and intravenously recommended by some, but too early to demonstrate their value. Convalescence —Prolonged mental and physical rest.

4. Erysipelas

Prophylaxis. Vaccines have been used without benefit. Cleanliness and aseptic precautions in the newborn and isolation are important. Early blood transfusion.

Medicinal. No specific internal remedy. Ichthyol, painted over the affected area in a 25% solution, or one part icthyol to three parts of lanolin or collodion, is one of the many topical applications.

Magnesium sulphate, ice compresses, hot boracic acid packs, ultra violet rays have their advocates.

Serum Therapy. Hemolytic streptococci, like their near relatives, the scarlatinal streptococci, produce a toxin, and for this a concentrated erysipelas streptococcus antitoxin of therapeutic value has been obtained. It is recommended to fight the toxemia, but does not prevent recurrence. Put up in 10 c.c. syringes with sterile needle. Dose 10 to 20 c.c. or more.

Of special value in the treatment of facial erysipelas.

No definite opinion about use of convalescent serum; not enough cases.

5. Erythema Infectiosum or Roseola Infantum

Treatment is symptomatic. The disease is important only in reference to diagnosis from the acute exanthemata, such as German measles, measles and scarlet fever. Also drug, toxic and intestinal rashes are differentiated by the duration, location and course of the eruption.

6. German Measles

Preventive treatment or control by early diagnosis, from history, mildness of symptoms, character of rash, enlarged cervical, occipital and other glands, so constantly seen; differentiated from measles, scarlet fever, antitoxin, drug, and reflex skin rashes from indigestion.

Isolation. Separation from non-immunes and exclusion from school and public places during infectivity. Communicable and reportable.

Immunization—none. Quarantine—excluded from school and public gatherings for 2 weeks. Disinfection of mouth, nose, and throat discharges and articles soiled. Terminal airing and cleaning.

Reason for attempting control is that it may be confused with scarlet fever.

7. Glandular Fever

Preventive control by early diagnosis and isolation by recognition of (1) swelling of the lymphnodes and pronounced fever without obvious cause, (2) the disproportion between the degree of cervical adenitis and the catarrhal symptoms, (3) the increase of the mononuclear leukocytes in the blood, (4) the characteristic position of the head, (5) the mild course, (6) and its usual occurrence in children or young adults.

Medical treatment is entirely symptomatic.

8. Influenza

Prophylactic Treatment.

Not easy to recognize by clinical symptoms only, except during epidemics when contact infection should be avoided; children should be kept away then from the coughing and sneezing in public places such as movies, street cars and stores; all health and food habits should be carefully checked up to increase the individual resistance.

Discharges from mouth and nose of infected persons, and freshly soiled articles should be disinfected. The avoidance of kissing and the use of articles in common; scrubbing hands before eating, excluding visitors from isolated towns and institutions, the closing of Sunday and day schools, face masks, treating dishes and utensils with hot soapsuds, airing and cleaning, the isolation of early and suspicious cases of upper respiratory infections, rest in bed from the beginning of an attack, and not to return to school or work without a thorough physical examination—all these are the general measures advisable during epidemics of influenza.

To prevent, there are no drugs of special value. Hexamethylenamin, 3 to 5 grains, well diluted, 3 or 4 times a day may have some prophylactic value. Quinin and oil of eucalyptol have been recommended.

The use of prophylactic vaccines, such as influenza combined (influenza bacillus of Pfeiffer, micrococcus catarrhalic, pneumococcus, streptococcus hemolytic and nonhemolytic) coming in four 1 c.c. bulbs or syringes, or in 5 or 20 c.c. vials; or influenza-pneumonia prophylactic, dispensed three bulbs in package (one complete course) or in 20 c.c. vials—these have been tried and are still extensively used. Apparently there is little scientific basis for including the Pfeiffer bacillus, since the case for it and for the Dialister pneumosintes has not yet been proved. Same comments as applied to secondary invaders and infections in colds.

General treatment of symptoms is by sponging, ice-caps, antipyrin, phenacetin, acetylsalicylic acid, sodium salicylate, bromide, Dover's powder, hot normal saline solution nasal douching, oil sprays, argyrol, neosilvol, cold compresses or ice bag to throat for cough, steam inhalations with benzoin, phenol and glycerine or incision for middle ear, symptomatic treatment of bronchitis, pneumonia or gastro-intestinal diseases. Finally tonics of iron, strychnin, malt, cod liver oil, nourishing food, much sleep and rest, pure air and heliotherapy.

Vaccine or Serum Treatment.

Influenza being primarily an intoxication it is unreasonable to suppose that injections of killed bacteria would produce any antitoxic immunity, and they undoubtedly do not.

The use of serum from convalescents not necessary, except in severe cases with pulmonary involvement; is experimental.

9. Malaria

Preventive treatment or control of

1. The infected individual and his environment by

(a) Recognition of the disease—clinical symptoms, always to be confirmed by blood examination, repeated if necessary.

(b) Screen patient from mosquitoes, until blood is free from malarial parasites by persistent treatment with quinine.

(c) Immunization—none. Prophylactic doses of quinine to those exposed to Anopheles.

(d) Quarantine—none.

(e) Disinfection—none. Destruction of Anopheles in the sick room.

2. General Measures.

(a) Destroy larvæ by eradicating breeding places of mosquitoes.

(b) Blood examination of persons living in infected centers.

(c) Screening sleeping and living quarters; use of mosquito nets.

(d) Killing mosquitoes in living quarters.

Medicinal

Bisulphate more soluble and more readily absorbed than sulphate of quinin. Given in syrups. Tannate and euquinin are tasteless and effective in children. Single large dose 3 to 10 grains 4 to 6 hours before expected paroxysm, or in sweating stage, or small doses at frequent intervals day and night, gradually increasing the intervals.

Under 2 yrs., 1 grain every 3 hrs.

Three to five yrs., 2 grains every 3 hrs.

Six to ten yrs., 3 grains every 3 hrs.

10. Measles.

Preventive treatment or control by

(a) Early recognition of catarrhal symptoms, Koplik spots, valley temperature chart, location and appearance of rash 10-14 days after exposure; differentiating from scarlet fever, German measles, influenza, skin diseases, antitoxin and drug rashes.

(b) Isolation—During catarrhal symptoms, until all abnormal secretions from mucous membranes have ceased—minimum of nine days—four before and five after appearance of rash being period of greatest communicability.

(c) Immunization by 5-10 c.c. of serum or 20-30 c.c. of whole blood of convalescent measles patients, or of healthy adults who have had measles; attack usually averted if given within 5 days after exposure, or, at least, modified. Given later prior to clinical symptoms, severity modified and permanent immunity conferred. Of great value in institutional outbreaks.

(d) Quarantine—Exposed susceptible school children and teachers excluded from school and public gatherings—14 days, household.

(e) Disinfection of articles soiled with secretions from nose and throat. Air, sunshine, thorough cleaning.

Active immunization by inoculation of the virus of measles taken from nasal mucous discharge of patients, one to two days before appearance of eruption, mixed with normal saline solution. A few drops applied to nasal mucous membranes of healthy infants of 4-5 mos., relatively immune from mothers gives a reaction of slight fever, and a few spots on face and body in 8 to 16 days. No unfavorable symptoms and several years of immunity conferred.

Measles toxin from so-called streptococcus morbilli injected into horses and rabbits produced an antitoxin concentrated several times as high in neutralizing power as the convalescent serum.

Immune goat serum, as prophylactic, inoculated four days after exposure, protected 97%. Valuable in young and delicate children and in hospitals and institutional epidemics, since it is available in greater quantities.

Treatment of Complications.

Symptomatically. Acute bronchitis with steam inhalations and expectorants, like ammonium chloride and epecac. Broncho-pneumonia, treated as usual.

11. Meningitis, Cerebrospinal.

Preventive Methods of Control of

1. The infected individual and his environment by

(a) Recognition of the disease by clinical symptoms, microscopic and bacteriological examination of the spinal fluid and of nasal and pharnygeal secretions.

(b) Isolation until 14 days after onset.

(c) Immunization by vaccines still experimental.

(d) Quarantine, none.

(e) Disinfection of discharges from nose and mouth and of soiled articles. Cleaning.

2. General Measures.

(a) Search for carriers among families and associates of recognized cases by bacteriological examination of posterior nares of all contacts.

(b) Education as to personal cleanliness and need of avoiding contacts.

(c) Prevention of overcrowding in living quarters, transportation conveyances, public assembly and working places, and inadequately ventilated closed quarters in barracks, camps and ships and among military units.

3. Epidemic Measures.

(a) Increase ventilation, separation of exposed persons, and minimize their bodily fatigue and strain.

(b) Quarantine carriers until nasal and pharyngeal secretions prove free from meningococci.

Clinical results of drugs disappointing, even hexamin; symptomatic only. Avoid broncho-pneumonia by good nursing.

Specific Serum Therapy.

In epidemic cerebro-spinal meningitis, or meningococcus meningitis, the antimeningococcus serum has reduced the mortality and physical damage. Indicated even before bacteriologic diagnosis. Give this polyvalent serum subdurally early, in amount smaller than amount withdrawn by lumbar puncture. Inject slowly under gravity pressure, not by syringe. If severe or obstinate, inject into ventricles to avoid hydrocephalus. Cisterna magna route not dangerous, more effective, and easier to enter. Intravenous injection of value theoretically only in early stages, when you are practically dealing with a severe general septicemia. Large quantities of serum (200-600 c.c.) are given intravenously. Isolate and cultivate organism, so if patient fails to respond, another lot may have a higher antibody content; otherwise secure another lot from another laboratory. The amount injected intraspinally is from 5 to 10 c.c. less than amount withdrawn, which latter is allowed to flow until it issues at 4 to 5 drops a minute. In children under five years 20 c.c. is probably the maximum.

In moderate cases repeat daily for four days until a decided remission of symptoms, or until organisms and pus cells disappear.

In severe cases, repeat every 12 hours. Continue spinal drainage after stopping injections.

until the pyrexia is ended and the spinal fluid is clear miscroscopically.

12. MUMPS.

Prophylactic Treatment or Control by:

Early diagnosis from adenitis by the history, size, shape, position, "feel" of swollen parotid gland, and inflammation of Stenson's duct.

Isolation and exclusion from school and public places.

Immunization, none. But Hess protected exposed children by drawing blood from median vein from donors recovering, from some entirely recovered, and from some who had mumps several years before; not one came down with mumps, although other children in same ward did.

Quarantine, none. Exposed, regularly inspected.

Disinfection — All articles soiled with discharges from nose and throat.

13. POLIOMYELITIS.

Prevention and Control by:

(a) Early recognition by clinical symptoms, assisted by chemical and miscroscopical examination of the spinal fluid.

(b) Isolation for three weeks.

(c) Immunization, none.

(d) Quarantine of exposed children and adults who might contact children and food handlers for 14 days.

(e) Disinfection, nose throat and bowel discharges and soiled articles. Cleaning.

General Measures During Epidemics.

(a) Search for and examine all sick children.

(b) Isolate all children with fever pending diagnosis.

(c) Education in bedside technic to prevent distribution of infectious discharges.

Acute Stage—Absolute rest in bed, casts, sand or salt bags, anodynes (codein, antipyrin, allonal, amytal), alcohol for bed sores; lumbar puncture has been advised with replacement of some spinal fluid with 2 c.c. of a 1-1000 solution of adrenalin every 6 hours from the beginning, overcomes edema and other inflammatory processes—not verified by later investigation.

Convalescence—From 4 to 6 weeks from onset. If tenderness is gone use massage, heat, electricity, and muscle training.

Serum Therapy.

In infantile paralysis, cause is not isolated; but disease can be transferred to monkeys, who can be immunized by vaccination; not practical yet for children. Laboratory and clinical experience show that convalescent serum has neutralizing properties for the virus; it inhibits or cures, given in sufficient amounts early, particularly if withdrawn recently.

Dose is arbitrary; custom is to inject 15 to 20 c.c. intraspinally, and about twice that intravenously.

Rosenow's antistreptococcus serum and other serums have been found by some investigators to have little or no protective or neutralizing action on the virus. The biological houses dispense a 10-c.c. syringe container of poliomyelitis antistreptococcic serum from the blood of horses immunized against the toxins and highly virulent cultures of streptococci isolated from polio cases; refined and concentrated; "offered with the recognition that the cause of the disease and the value of the serum are still unsettled."

14. RABIES.

General Control Measures.

Muzzling of all dogs allowed to go at large.

Detention and examination of dogs suspected.

No delay in antirabic treatment of persons bitten by dogs or by other animals, known or suspected of having rabies.

Where rabies is prevalent, rigid quarantine, and yearly immunization of dogs. But dogs so vaccinated are not always resistant to street virus. One single dose is contents of 5 c.c. vial.

Local treatment.

Clean wound, produce bleeding, cauterize with fuming nitric acid, drop by drop, within 24 hours. If bone, cartilage, or bloodless tissue, use pure carbolic acid instead.

Prophylactic Treatment for Humans.

Pasteur treatment is indicated:

1. For bites from animals proved rabid by dumb or furious symptoms, or by the microscope (Negri bodies found in biting animal's brain); animal inoculations with infected brain material is slower method.

2. When hands or face are contaminated with saliva of a rabid animal without being bitten (possible cracks, hangnails or open wounds).

3. For bites from stray dogs which cannot be located, precautionary.

4. For bites by animals with suspicious actions, or when rabies infection cannot be ruled out.

Results of Pasteur Treatment:

Immunity is usually conferred, if wound is not on face. Lacerated bites of hands or face require intensive treatment.

Rabies Vaccine (Cumming).

A full adult treatment consists of daily injections of 21 syringes of 2 c.c. each (3 pkgs.) or

A 21-dose treatment is delivered in three installments at intervals of four days.

A 14-dose treatment, delivered in two installments at intervals of four days is sufficient for slight exposure remote from the brain, a superficial bite or abrasion through the clothing, or on the lower extremities.

Children under 4 require only 1 c.c. doses. Phone air mail order to nearest biological branch or equipped hospital.

15. Rheumatic Fever, Acute.

Prophylaxis—Avoid exposure to cold and dampness in poorly ventilated insanitary environment. But outdoor exercise, fresh air and sun are warranted.

Tonsillectomy and adenoidectomy, best done between attacks, undoubtedly removes possible portals of entry. A complete operation may not insure freedom from subsequent attacks, but the general condition and resistance are greatly improved.

General Treatment—Prolonged rest in a comfortable bed reduces blood pressure, lowers the pulse rate, lessens the danger of heart complications, and gives relief to joint and muscle pain by making immobilization possible. Heat, gentle rubbing with oils containing salicylates, wrapping in cotton, sponging the sweating body with alcohol, flannel pajamas, liberal typhoid diet, including meat, acids, milk, cereals, eggs, fruits, fruit juices, lemonade, alkaline mineral waters—all add much comfort to the little patient. Giving medicine with the food is bad psychology.

Salicylic acid and its derivatives are considered by many as specific; relieve pain, reduce fever, allay joint inflammation and possibly shorten attack. Avoid overdoses and salicylic acid; sodium salicylate is most generally used; 30 to 60 grains a day in divided doses to a child of five. Give after feeding rather than before. An alkali (soda bicarbonate) given in twice the dose of the salicylates prevents gastric irritation. Aspirin and novaspirin are well borne by young children; tolysin has the advantage of being tasteless and more easily administered.

For intense pain, temporarily, morphine, codein or allonal.

Great care and rest during prolonged convalescence, against cardiac complications and relapses.

Anemia, so common, is best treated with carbonate or citrate of iron combined with 1/200 gr. of arsenious acid or two drops of Fowler's solution. Liver is of great value.

Vaccines and Sera. Problem not definitely solved. Small and Birkhaug's publication on a particular coccus, toxin, and immune serum, not convincing. Not certain that "Streptococcus cardioarthritidis" is the cause of rheumatic fever. We must suspend judgment.

16. Scarlet Fever.

Treatment.

Prevention or Control by:

(a) Early diagnosis made from Schultz-Charlton skin blanching test, history of exposure, vomiting, angina, sudden temperature, tachycardia, strawberry tongue, erythematous rash on chest, etc., 2-7 days after exposure; differentiated from measles, rubella, diphtheria (tonsillar exudate) tonsillitis, septicemia, erythema scarlatiniform, urticaria, and drug eruptions.

(b) Isolation for 28 days from onset, regardless of desquamation, until cessation of all abnormal discharges carrying streptococcus scarlatinae from nose, throat, ears, abscesses, or wounds. Daily medical inspection of exposed school children.

(c) Immunization. Exposed susceptibles demonstrated by Dick test, analogous to technic of Schick test, may be actively immunized by injecting the diluted toxin into triceps three successive weeks. Immunity conferred for over eighteen months. Passive immunity by injecting scarlet fever antitoxin very temporary, occasionally severe anaphylaxis; not advised because of reaction, greater future susceptibility to serum sickness, and because only about 10% of exposed persons develop scarlet fever.

(d) Quarantine. Exclusion of exposed children and teachers from school, and food handlers from work, for seven days. Stress contagion of children with acute catarrhal symptoms.

(e) Disinfection of all contact or soiled articles, and pasteurization of possibly contaminated milk or milk products. Airing, cleaning and sun.

Treatment of Complications.

Adenitis. Ice bag for resolution or warm poultices to hasten suppuration. Not too early incision, except in severe cellulitis.

Ears. Hot douches of two quarts 4% boric acid solution every 2 or 3 hours, followed by drying and instillation of phenol and glycerine. Incise early for bulging. Keep canal clean, dry, and sterile with gauze ear-wicks. Watch for mastoiditis. Nephritis treated as usual.

Specific Treatment.

Scarlet fever streptococcus antitoxin. One sufficiently large early therapeutic dose is essential. Second or third, only if toxic symptoms recur. Intramuscular injections satisfactory, but if cases are severe use intravenous route in reduced dosage.

Give usually a desensitizing, subcutaneous injection of 0.2 to 0.4 c.c. about two hours before therapeutic dose—always if intravenous; 3000 units ordinarily enough; may be reduced for very young. For very toxic cases initial dose may be 6000 to 8000 units, part intramuscularly and part intravenously.

Some feel that owing to serum reaction, this antitoxin should be used only for severe septic types, one large dose, as repetition seems to have no effect.

Distribution. Therapeutic packages from commercial houses contain 3000 units varying from 10 to 20 c.c., depending upon antitoxic potency (one test dose of toxin).

Passive immunization of persons susceptible by Dick intracutaneous test, if so desired, can be done from 1500 unit (5 to 10 c.c.) packages; may be obtained from State Laboratory on special request.

17. Septic Sore Throat.

To control the infected patient and his surroundings.

Recognize the disease by the explosive nature of the outbreak and by finding cases patronizing a certain milk dealer, restaurant or ice cream parlor. The extreme swelling and soreness of glands and throat, prostration, recurrence after temperature drops, differentiate it from ordinary tonsillitis. Laparotomy reveals a peritonitis but with appendix intact. If rash is severe, scarlet fever is suspected, but blanching test is negative, no strawberry tongue, and the rash appears on the third or fourth day. Bacteriological examination of the streptococcus (hemolytic type).

Isolation during the sickness and convalescense, and exclusion from handling milk or milk products.

Immunization, none. Quarantine, none.

Disinfection of articles soiled with discharges from the nose and throat of patient. Cleaning.

General Measures. Forbidding public sale or use of milk until pateurized. Exclusion of the milk of infected cow is possible based on bacteriological examination of the milk of each cow, and preferably from each quarter of the udder. Exclusion of carriers, pasteurization, and avoidance of common towel, drinking and eating utensils. Aspirin, phenacetin, methenamin, allonal, amytal, local irrigations of normal saline, spraying with weak solutions of argyrol or gentian violet, steam benzoin inhalations, and ice bag or collar are among the things used for relief of the distressing symptoms.

If diphtheria is suspected lose no time in using antitoxin.

18. Smallpox.

Prophylactic Treatment or Control by:

(a) Recognition from the clinical symptoms. Immunity tests may prove useful.

(b) Isolation. In screened hospital wards, vermin free, until infectivity is over.

(c) Immunization by multiple pressure method of vaccination. Keep vaccine cold and fresh for maximum takes.

(d) Quarantine. Isolation of contacts until vaccination with virus of full potency. Daily medical observation of all recently vaccinated contacts until height of reaction is passed, if vaccinated within 24 hours of first exposure, otherwise for 16 days from last exposure.

(e) Disinfection of all articles by boiling or other effective disinfectant; thorough cleaning and disinfection of premises.

(f) General vaccination in infancy, again on entering school, and of all persons if variola appears in severe form.

Vaccination.

Multiple pressure method of vaccinating by tangential pricking of cleansed but not irritated skin, 30 times in 5 seconds, through a drop of smallpox vaccine, covering area not greater than one-eighth inch; needle point crosswise of the area, should be lifted free and above the skin. At once wipe off the remaining virus with sterile gauze. No dressing.

19. Tetanus.

1. Preventive Methods of Control.

The infected individual and his environment.

(a) Recognition of the disease—clinical symptoms; tetanus baccillus may be confirmed bacteriologically.

(b) Isolation, none.

(c) Immunization, by at least one, and preferably two, injections of antitoxin.

(c) Quarantine, none.

(d) Disinfection, none.

2. General Measures:

(a) Obstetrical supervision.

(b) Education propaganda such as "safety-first" campaign, and "safe and sane Fourth of July" campaign.

(c) Prophylactic tetanus antitoxin where wounds are ragged or penetrating or are acquired where soil is contaminated.

(d) Clean foreign matter and slough from all wounds early.

(e) Supervision of biological products, especially vaccines and sera.

Prophylactic antitoxin 1,500 units subcutaneous, as near the wound, or the main nerve trunk leading from the wound, as is practicable.

For children, 40 units per pound of body weight dose within 7-10 days.

Treatment by Antitoxin:

Dosage recommended by the New York City Department of Health:

Day	Intraspinally	Intravenously	Subcutaneously
First	5,000 to 10,000	10,000	
Second	5,000 to 10,000		
Third	5,000 to 10,000		
Fourth	5,000		5,000 to 10,000

Computing adult dose of 10,000 units as equivalent to 70 units per pound of body weight, the following table is the corresponding dosage for a child of 50 pounds:

Day	Intraspinally	Intravenously	Subcutaneously
First	3,500	3,500	
Second	3,500		
Third	2,000		
Fourth			3,500

Drugs. Sedatives most useful.

For a two-year-old, 7 to 10 grs. of potassium bromide well diluted, every 2 hours; 2 to 3 grs. of chloral every hour.

Luminal has recently been advocated. Adult dose 3 to 5 grains by mouth or rectum.

Chloretone controls muscular twitchings, and seems safe. Adult dose 30 to 60 grains in weak alcohol by mouth, or in hot olive oil by rectum.

British War Commission decided against magnesium sulphate. May be tried if antitoxin cannot be obtained promptly. Dose 1 c.c. of a 25% solution for every 25 lbs. of body weight, given intraspinally. Carbolic acid no longer used. Control spasms by inhalation of chloroform. Morphine sulphate to quiet patient.

20. Typhoid Fever.

Preventive Methods of Control:

1. The infected individual and his environment by

(a) Recognition of the disease, clinical symptoms, confirmed by specific agglutination test and bacteriological examination of blood, bowel discharges, or urine.

(b) Isolation. In fly-proof room at hospital, if inadequate sanitary and nursing care at home. Release by two successive negative cultures of stools and urines at least 24 hours apart.

(c) Immunization, of susceptibles who have been or may be exposed.

(d) Quarantine, none.

(e) Disinfection of all bowel or urinary discharges, and soiled articles. Cleaning.

2. General Measures:

Pure and protected water, pasteurized milk, supervised food and food handlers, avoiding carriers, prevention of fly breeding, sanitary disposal of human excreta, vaccination where typhoid is prevalent, systematic examination of feces from contact carriers, vaccination of travelers who do not show strongly positive Widal reaction, exclusion of suspected milk, pending discovery of contamination, and of water, unless disinfected by hypochlorite or by boiling.

Medical Treatment. Not specific but symptomatic. Liberal typhoid diet of soups, cereals, eggs, meat, milk toast without crusts, desserts and all liquids. The child gets all he wants or digests, to secure contentment and gain in weight.

Little new about typhoid vaccine, and no specific serum for therapy. "Triple Vaccine" (including the two types of paratyphoid infection) is of U. S. Army and Navy standard. In immunizing adults, best given in divided doses, giving 0.2, 0.5, 1 and 1 c.c. at weekly intervals. Children do not react so severely as adults; does not interfere with school or play. Dose for children based on body weight. Average adult weighs 150 pounds; a 50 pound child would receive one-third the adult dose.

Both bacterial vaccines, typhoid and typhoid-paratyphoid, come in three bulbs (one course), three syringes (one course), ten 2.5 c.c. bulbs (hospital package), and 20 c.c. vial.

Some biological houses make Typhoid Phylacogen and claim that "its early use usually shortens the course of the disease, renders the symptoms milder, and reduces the incidence of disturbing and dangerous complications."

21. Upper Respiratory Infections (Common Colds).

General Treatment, (see influenza).

Biological control not rational, because theoretically, etiological specific micro-organisms unknown. Yet, clinically, combined vaccines may produce a specific immunity for the strain injected, are harmless, and are worth further trial or study.

22. Whooping Cough.

Preventive Treatment or Control by:

(a) Recognition of clinical symptoms of a cold and a cough with spasmodic expirations, gradually becoming paroxysmal with crowing inspirations, and glairy mucus, worse at night; lungs usually negative, increase in leucocytes or rather lymphocytes, history of exposure or epidemic; failure of medical treatment and antispasmodics; confirmation by bacteriological examination of bronchial secretions even one week before characteristic whoop. Pertussis bacillus of Bordet and Gengou, Hemophilus pertussis.

(b) Isolation. Separation of patient from susceptible children and exclusion from school and public places for the period of presumed infectivity, which is catarrhal stage (7-14 days), continuing certainly for three weeks after characteristic whoop appears.

(c) Immunization. Vaccine injected subcutaneously early, in sufficient dose, 7% contracted pertussis instead of the usual 60% of exposed. For a year-old infant two thousand million the first dose, four thousand million the second dose and six thousand million the third dose, two or three days apart.

(d) Quarantine. Limited to the exclusion of non-immune children from school and public gatherings for 10 days after their last exposure.

(e) Disinfection of nose and throat discharges and articles soiled by discharges. Cleaning, sun and air.

(f) Education in dangers of catarrhal symptoms with cough.

Therapeutic Injections. Same technic and dosage as in prophylactic, four to six injections, the last two being eight thousand million and sixteen thousand million; the earlier given, the quicker the improvement in the number, severity and duration of the attacks.

In the prophylactic and curative treatment of the acute infectious diseases of childhood, the number of drugs, vaccines and serums used is many; the list of infections for which to find prevention, alleviation, or cure is long. For some we rest on firm ground with specific and reliable agents; for others we have slight theoretical and clinical evidence, and still for others little or no justification, for their use. To differentiate these, necessitates theory, practice and experimental data.

Indebtedness is hereby acknowledged to:

Dr. Henry L. Shaw, "Infectious Diseases of Infancy and Childhood."

Edward S. Godfrey, Jr., "Introduction to Infancy and Childhood."

Dr. Benjamin White's "Critical Review of Vaccine and Serum Therapy."

Committee on Standard Regulations for the Control of Communicable Diseases of the American Public Health Association.

The U. S. Public Health Service.

New York State Department of Health.

(From the above I have quoted freely).

To Kolmer and to Thomas and Evy for facts on immunology.

"Recent Advances in Diseases of Children," Pearson and Wyllie, London Abt's Pediatrics, 1928, 1929.

Fantus' "Gen'l Therapeutics," 1928, 1929.

"Handbook of Therapy," Osborne and Fishbein, 1928, A. M. A.

"Treatment of Disease in Infants and Children," Kleinschmidt, Germany.

Catalogs of various drug houses.

"The Principles of Sanitation," C. H. Kibbey.

Resume

Chickenpox: Prophylactic inoculations and vaccinations justified only in institutions. Intravenous injection of contents of vesicles immunizes. Bed in eruptive stage, urine examination, alkaline washes and lotions, fingernail restraint to avoid scars on face.

Diphtheria: Exposed non-immunes (to Schick test) to have one or two thousand units of antitoxin, unless cultured and daily observed. Quarantined until two successive negative cultures, 24 hours apart, from both nose and throat.

Permanent active immunization, with or without prior Schick test from six months on, by three 1 c. c. doses subcutaneous, 5 to 7 days apart of toxin-antitoxin; or one 0.5 c.c. reaction test and two 1 c.c. doses of toxoid, one week apart. Schick test in six months.

Units of antitoxin required in the treatment of a case (Park, Willard Parker Hospital):

	Mild	Moderate
Infants, 10-30 lbs. (under 2 yrs.)....	2,000-3,000	3,000- 5,000
Children, 30-90 lbs. (under 15 yrs.)..	3,000-4,000	4,000-10,000
Adults, over 90 lbs.	3,000-5,000	5,000-10,000
	Severe	**Malignant**
Infants, 10-30 lbs. (under 2 yrs.) .	6,000-10,000	8,000-10,000
Children, 30-90 lbs. (under 15 yrs.)	10,000-15,000	15,000-20,000
Adults, over 90 lbs.	15,000-20,000	20,000-30,000

When given intravenously one-half the amounts stated. Mild cases subcutaneous, otherwise intramuscular (gluteus) except where immediate neutralization is imperative, then intravenous.

Erysipelas: Concentrated sereptococcus antitoxin for toxemia. Syringe of 5,000 units

(10 c.c.). Dose 10-20 c.c. or more. Convalescent serum—no definite opinion.

Influenza: Prophylactic vaccines, influenza combined, four 1 c. c. bulbs or syringes, of probable value to prevent secondary invasions, but no known specific biologic agent to prevent or to cure, since influenza is an intoxication. Hexamethylanamin 3-5 grs. diluted, t. i. d., quinin, oil eucalyptus, sponging, ice cap or bag, antipyretics, sedatives, sprays, argyrol, neosilvol, steam; care of ears, lungs, bowels; rest, pure air and sun.

Malaria: Prophylaxis by recognition by clinical symptoms and blood examination. Screens. Quinin. Destroy mosquitoes, adult and larvae. Medicinal: Quinin bisulphate, tannate, euquinin in syrups; 3-10 gr., 4-6 hours before paroxysm (in sweating stage); or, under 2 years, 1 gr. every 3 hours, 3-5 years, 2 grs. every 3 hours; 6-10 years, 3 grs. every 3 hours.

Measles: Prophylaxis, passive. Immunization by 5-10 c. c. of convalescent serum or 20-30 c. c. of whole blood of convalescent patients, or of healthy adults who have had measles. Given within 5 days after exposure, attack is averted or modified. Given later and prior to clinical symptoms, modified and permanently immunized. Valuable in institutions. One to three years, within 4 days of exposure 5 c.c. of serum intramuscularly to prevent. Adults within four days of exposure 25 c.c. (75 c.c. blood). One to three years, 5 to 7 days after exposure, 10 c.c. serum. Adults, 5 to 7 days after exposure, 30 to 40 c.c. serum, (75 to 100 c.c. blood). Three years up, within 4 days after exposure, 10 c.c. serum. Protection for 3 to 4 weeks only.

To limit to moderate attack lasting a few hours, use ⅓ to ½ the protective dose, to produce a lasting active immunity.

Active immunization is by inoculation of virus of measles taken from nasal mucus discharge of patients 1 to 2 days before eruption, mixed with normal saline solution. Few drops applied to nasal mucus membrane of healthy infants 4 to 5 months old give few spots on face and body; confer several years of immunity.

Measles toxin from streptococci morbilli injected into horses and rabbits produced an antitoxin more concentrated than convalescent serum. Immune goat serum, as prophylactic, inoculation 4 days after exposure, protected 97%. Available in greater quantities.

Meningitis, Cerebrospinal:

Immunization by vaccines experimental. Withdraw spinal fluid until it issues 4 to 5 drops a minute. Inject polyvalent antimeningococcus serum subdurally early, 5 to 10 c.c. less than amount withdrawn. Under 5 years 20 c.c. probably maximum. Moderate cases, repeat every 12 hours until pyrexia is ended, and spinal fluid clear microscopically. Obstinate, inject into ventricles or cisterna magna.

Intravenous of value theoretically in early stages only (general septicemia), 200 to 600 c.c. Isolate and cultivate organism.

Mumps:

Immunization is produced from blood of donors recovering, recently recovered and those several years ago recovered.

Poliomyelitis:

Immunization of monkeys by vaccination; not practical yet for children. Acute stage: Bed, casts, sand bags, anodynes, alcohol for bed sores. Convalescence: From 4 to 6 weeks from onset; if tenderness is gone, use massage, heat, electricity, and muscle training.

Convalescent serum therapy. Dose is arbitrary; inject 15 to 20 c.c. intraspinally, and twice that intravenously, early.

Rabies:

Prophylactic: Muzzling, detention, examination, quarantine and vaccination of dogs (5 c.c. vial).

Local Treatment.—Clean, bleed, cauterize wound with fuming nitric acid drop by drop, within 24 hours; bone, cartilage, or bloodless tissue, pure carbolic acid instead.

Prophylactic for Humans. Pasteur treatment. Twenty-one daily injections of 2 c.c. each is full adult dose. A 14 dose treatment delivered in two installments at intervals of 4 days for slight exposure remote from brain, superficial, through clothing, or on lower extremities.

Rheumatic Fever, Acute:

Prophylaxis: Avoid cold, damp poorly ventilated insanitary environment. Fresh air, sun, and outdoor exercise.

Tonsillectomy and adenoidectomy.

General Treatment: Rest in bed prolonged.

Heat, gentle rubbing with oil of wintergreen, wrap in cotton, sponging, flannel pajamas, liberal diet.

Sodium salicylate 30 to 60 grains a day in divided doses to child of 5. Aspirin, novaspirin, tolysin, anodynes, sedatives, prolonged convalescence, iron, arsenic, liver. Vaccines and sera, problem not solved.

Scarlet Fever: Prophylaxis. Early diagnosis from symptoms and from Schultz-Charlton skin blanching test (1 c.c. bulbs). Technic like Schick. Immunization, Dick intracutaneous

test to exposed susceptibles (technic like Schick—1 c. c. vial of diluted toxin, 10 tests). Actively immunize for over 18 months, by injecting diluted toxin into triceps three successive weeks; or better, five vials of 500, 2000, 8000, 25,000, and 80,000 skin test doses, at intervals of about five days.

Scarlet fever streptococcus antitoxin, refined and concentrated. One prophylactic dose, by passive immunization, protects contacts for about ten days. 2000 units (100,000 original neutralizing units) in syringe. Objection to use is possible present or future serum sickness; not so liable as formerly.

One sufficiently large early therapeutic dose of 3000 (10-20 c.c.) units, intramuscularly, ordinarily enough. Second or third dose if toxic symptoms recur. Reduce for the very young. For very toxic cases 6000-8000 units, part intramuscularly and part intravenously (desensitize with 0.2 to 0.4 c.c. subcutaneous two hours before—always if intravenous).

Smallpox: Prophylactic immunization by multiple pressure method of vaccination by tangential pricking of cleansed but not irritated skin, 30 times in 5 seconds through a drop of vaccine, ⅛-inch area; needle point crosswise, lifted free. Keep vaccine cold, fresh for maximum takes.

Tetanus: Prophylactic immunization of one (better two) injections of 1,500 units tetanus antitoxin, subcutaneous, near wound or main nerve trunk from wound. Children, 40 units per pound of body weight dose, within 7-10 days. Treatment by tetanus antitoxin of adults (child of 50 pounds in parenthesis, computing adult dose of 10,000 units equal to 70 units per pound).

Day	Intraspinally	Intravenously	Subcutaneously
First....	5,000-10,000(3,500)	10,000-(3,500)	
Second..	5,000-10,000(3,500)		
Third ...	5,000-10,000(2,000)		
Fourth...	5,000		5,000-10,000(3,500)

Typhoid Fever: Prophylactic immunization with "Triple Vaccine." Adults one course of three bulbs or three syringes, 0.5 c.c., 1 c.c., 1 c.c., at weekly intervals. Dose for children based on body weight: adults 150 pounds, 50-pound child one-third adult dose.

Upper Respiratory Infections (Common Colds): Theoretically vaccines or biologic treatment not rational, yet clinically may produce immunity for strain injected and are harmless. Catarrhal combined, four 1 c.c. bulbs or syringes in package.

Whooping Cough: Prophylactic immunization. For a year-old infant, inject vaccine subcutaneously early, two thousand million the first dose, four thousand million the second dose and six thousand million the third dose, two or three days apart.

Therapeutic injections: Same technic and dosage as in prophylactic, four to six injections, the last two being eight thousand million and sixteen thousand million. The earlier given, the quicker the improvement in number, severity and duration.

DISCUSSION

Dr. Luther W. Holloway, Jacksonville:

Fortunately all of the acute infectious diseases encountered in infants and children in Florida are milder in their manifestations than in more northern climes.

The diseases which especially interest us are, scarlet fever, diphtheria and cerebro-spinal meningitis, the latter occurring sporadically.

With regard to scarlet fever, I would like to urge the use of scarlet fever antitoxin early in all cases, whether mild or severe. There is some difference of opinion regarding its use in mild cases. However, all authorities agree that its use is indicated in the severe or toxic cases. Some of the apparently mild cases have the worst complications, and no one can say when they will appear. We have seen the complications, otitis media, mastoiditis, acute suppurative adenitis, cardiac and kidney involvement, in cases so mild at the onset that the antitoxin was not given.

Ninety per cent of the recipients of serum have reactions of one degree or another, but this should not deter us from using a remedy which is so helpful in quickly improving the patient's condition, shortening convalescence and preventing complications. During the last five years with its early use in the attack, the complications have been reduced to a minimum.

Diphtheria should be treated early with one large dose of antitoxin, and the results should be excellent.

We have a means by which we can protect the children from diphtheria. The administration of toxin-antitoxin by the end of the first year will protect most of the little patients from diphtheria. They should be tested, however, at the end of six months following the injections to ascertain if they are immune.

The question of meningitis has been one of very vital interest to the medical profession in Jacksonville on account of the high mortality incident to this disease. Our mortality has been nearly one hundred per cent. There are many strains of meningococci, and the serum, which we

have been using, is not sufficiently polyvalent to cover the numerous strains, so I think our State Board of Health should look into this matter, and see why our mortality is so high as compared with other centers, where they lose only forty to fifty per cent.

Dr. Lucile Spire Blachly, Jacksonville:

I shall not attempt to discuss this paper from the standpoint of the practicing physician. It has been five or six years since I practiced medicine. Usually I have attended the annual meetings of the State and National Associations, at which times I have heard the contagious diseases discussed and it seems to me that each year there is something new being brought out. As a public health worker, I have hopes that it will not be long until we will have accurate means of preventing most, if not all, of them. I do want to say a word in this connection: It is my task as director of the Bureau of Child Hygiene to get the parents to have the children vaccinated and immunized, and I have found that the first obstacle that confronts us is the lack of agreement on the part of the State Public Health Department, the City Health Department, the County Medical Societies and the individual doctors, as to just when we shall vaccinate or immunize, and how much. If we could all agree on some definite plan as to the age at which a child should be vaccinated against smallpox and at what age the child should be immunized against diphtheria, etc., and this information could be printed on a slip of paper—a very small slip of paper would do—have this signed by the representative heads of the State Board of Health, the State Medical Association and the City Health Departments, and these made available to all the community leaders of the state—I dare say it would not be long until all of the children in the State would have had these vaccinations and immunizations.

Whenever a parent finds two authorities are not agreed as to what ought to be done, there immediately enters the question of postponing, what, to them, is a doubtful or perhaps a painful or serious matter.

I thank you.

Dr. W. A. Claxton, Melbourne:

There are one or two things I would like to mention in connection with the use of vaccines and serums by local doctors and various health officers.

There is a mistaken idea that toxin-antitoxin gives immediate immunity. I recall a case of diphtheria where the suggestion was made by a local practitioner that we give toxin-antitoxin immediately. Now, we all know that toxin-antitoxin does not give immunity for perhaps four to six months. It is consequently not an emergency measure, and, therefore, should not be considered so.

The next thing is the question of using fresh vaccine and serum. In my travels throughout the State I go to drug stores in small towns and find that the serums and vaccines furnished fresh by the State Board of Health to the druggist for distribution have been off the ice for months, and have consequently lost potency. Now, if a case of diphtheria develops and the doctor rushes to the drug store and gets this diphtheria antitoxin he relies on it to save the child. If the child does not live the fault may be that the material which the doctor got at the drug store was not fresh and was not potent. It is the duty of the local doctors to see that their druggist does keep this material properly, does keep it on ice, and does furnish it fresh.

In the matter of smallpox vaccine, we find the same thing prevailing. Smallpox vaccine deteriorates very rapidly. If you leave it around the office for four days the potency is gone. You vaccinate a number of individuals and get no takes and so the work has to be done all over again to be effective.

Dr. McKibben, Miami (closing):

I want to emphasize one point that Dr. Holloway brought up about scarlet fever. There has been a difference in opinion as to when to use the serum. Up in Massachusetts they have found it advisable to use it as a routine. They formed this conclusion because it reduced, not only the mortality, but the complications as well. It increased the resistance of the child so that there were fewer complications.

To reiterate what Dr. Holloway said about the treatment of meningitis. In some of our cases we got, by airmail, serum from New York and Atlanta, thinking the different sera might give different results. But our results have been just about the same as he had in Jacksonville. Up in Massachusetts we formerly got a mortality of 25%. In Miami City Hospital the few patients we had during my three months' service last winter died. In other words, the results obtained from the New York and Atlanta sera coincided with the results they experienced in those two respective cities. This probably means that epidemic cerebro-spinal meningitis was most virulent with them as with us here in Florida.

The Journal of the Florida Medical Association, Inc.

Owned and published by the Florida Medical Association, Inc.

Acceptance for mailing at special rate of postage provided for in Section 1103, Act of Congress of October 3, 1917; authorized October 16, 1918.

Published monthly at Jacksonville, Florida. Price $3.00 a year. Single numbers, 30 cents.

Contributions for publication in this journal, whether scientific papers or reports of County Secretaries, should be typewritten.

Address Journal of the Florida Medical Association, Inc., Box 81, Jacksonville, Fla. Telephone: 5-6186

EDITOR
SHALER RICHARDSON, M.D.

BUSINESS MANAGER
STEWART G. THOMPSON, D.P.H.

ASSOCIATE EDITORS

BUNDY ALLEN, M.D. . . . . *Tampa*
HERBERT CALDWELL, M.D. . . . . *Lake City*
J. R. CHAPPELL, M.D. . . . . *Orlando*
C. J. HEINBERG, M.D. . . . . *Pensacola*
BASCOM H. PALMER, M.D. . . . . *Miami*
FERDINAND RICHARDS, M.D. . . . . *Jacksonville*

COMMITTEE ON PUBLICATION

G. H. EDWARDS, M.D., CHAIRMAN . . . . . *Orlando*
SHALER RICHARDSON, M.D. . . . . *Jacksonville*
ROY J. HOLMES, M.D. . . . . *Miami*

OFFICERS OF THE FLORIDA MEDICAL ASSOCIATION, INC.

JULIUS C. DAVIS, M.D., PRESIDENT . . . . . *Quincy*
W. C. PAYNE, M.D., FIRST VICE-PRESIDENT . . . . . *Pensacola*
W. H. SPIERS, M.D., SECOND VICE-PRESIDENT . . . . . *Orlando*
M. J. FLIPSE, M.D., THIRD VICE-PRESIDENT . . . . . *Miami*
SHALER RICHARDSON, M.D., Secy.-Treas. . . . . *Jacksonville*

EXECUTIVE COMMITTEE

L. M. ANDERSON, M.D., CHAIRMAN . . . . . *Lake City*
GERRY R. HOLDEN, M.D. . . . . *Jacksonville*
M. A. LISCHKOFF, M.D. . . . . *Pensacola*

COMMITTEE ON SCIENTIFIC PROGRAM

HERBERT L. BRYANS, M.D., CHAIRMAN . . . . . *Pensacola*
J. Q. FOLMAR, M.D. . . . . *Chattahoochee*
W. S. MANNING, M.D. . . . . *Jacksonville*

COMMITTEE ON LEGISLATION AND PUBLIC POLICY

W. M. ROWLETT, M.D., CHAIRMAN . . . . . *Tampa*
HENRY E. PALMER, M.D. . . . . *Tallahassee*
HENRY C. DOZIER, M.D. . . . . *Ocala*

COMMITTEE ON NECROLOGY

R. G. NOBLES, M.D., Districts 1, 2, 3, 9, 14 . . . . . *Pensacola*
ROBT. H. MCGINNIS, M.D., District 4 . . . . . *Jacksonville*
C. MCK. TYRE, M.D., Districts 5, 7, 8, 16 . . . . . *Eustis*
L. S. OPPENHEIMER, M.D., Districts 6, 10, 12, 13, 19 . . . *Tampa*
R. C. WOODARD, M.D., District 11 . . . . . *Miami*
JACK HALTON, M.D., District 18. . . . . *Sarasota*
L. A. PEEK, M.D., Districts 15, 17, 21 . . . . *W. Palm Beach*
HARRY C. GALEY, M.D., District 20 . . . . . *Key West*

MEDICAL EDUCATION AND HOSPITAL COMMITTEE

JOHN E. BOYD, M.D., CHAIRMAN (Term expires 1932), *Jacksonville*
JOHN S. HELMS, M.D. (Term expires 1931) . . . . . *Tampa*
R. O. LYELL, M.D. (Term expires 1933) . . . . . *Miami*

AMERICAN MEDICAL ASSN.—HOUSE OF DELEGATES

G. H. EDWARDS, M.D., Delegate . . . . . *Orlando*
BUNDY ALLEN, M.D., Alternate . . . . . *Tampa*
(Terms expire May, 1932)

SHALER RICHARDSON, M.D., Delegate . . . . . *Jacksonville*
F. C. MOOR, M.D., Alternate . . . . . *Tallahassee*
(Terms expire May, 1931)

DISTRICTS OF THE FLORIDA MEDICAL ASSOCIATION, INC., AND COUNCILORS

FIRST DISTRICT—J. M. HOFFMAN, M.D. . . . . *Pensacola*
Okaloosa, Walton, Santa Rosa, Escambia.

SECOND DISTRICT—O. G. KENDRICK, M.D . . . . *Tallahassee*
Liberty, Gadsden, Jefferson, Wakulla, Leon, Franklin.

THIRD DISTRICT—HENRY M. STRICKLAND, M.D. . . *Live Oak*
Hamilton, Dixie, Taylor, Madison, Columbia, Suwannee, Lafayette.

FOURTH DISTRICT—J. M. IRWIN, M.D. . . . *St. Augustine*
Nassau, Clay, Duval, St. Johns.

FIFTH DISTRICT—E. G. PEEK, M.D. . . . . *Ocala*
Citrus, Marion.

SIXTH DISTRICT—O. O. FEASTER, M.D. . . . *St. Petersburg*
Pinellas.

SEVENTH DISTRICT—J. RALSTON WELLS, M.D. . *Daytona Beach*
Brevard, Volusia, Seminole.

EIGHTH DISTRICT—S. D. RICE, M.D. . . . . *Gainesville*
Putnam, Levy, Baker, Bradford, Union, Flagler, Alachua.

NINTH DISTRICT—J. M. NIXON, M.D. . . . . *Panama City*
Holmes, Washington, Bay.

TENTH DISTRICT—G. C. OVERSTREET, M.D. . . . *Lakeland*
Polk.

ELEVENTH DISTRICT—M. J. FLIPSE, M.D. . . . . *Miami*
Dade.

TWELFTH DISTRICT—W. H. GRACE, M.D. . . . *Ft. Myers*
Glades, Charlotte, Hendry, Lee, Collier.

THIRTEENTH DISTRICT—A. M. C. JOBSON, M.D. . . *Tampa*
Hillsboro, Hernando, Pasco.

FOURTEENTH DISTRICT—D. A. MCKINNON, M.D. . *Marianna*
Calhoun, Jackson, Gulf.

FIFTEENTH DISTRICT—C. W. SHACKELFORD, M.D.
Palm Beach, Broward . . . . . *West Palm Beach*

SIXTEENTH DISTRICT—S. C. WOOD, M.D. . . . *Leesburg*
Sumter, Lake.

SEVENTEENTH DISTRICT—SPENCER A. FOLSOM, M.D. . *Orlando*
Osceola, Orange.

EIGHTEENTH DISTRICT—H. GATES, M.D. . . . . *Bradenton*
Manatee, Sarasota.

NINETEENTH DISTRICT—HENRY P. BEVIS, M.D. . . . *Arcadia*
DeSoto, Hardee, Highlands.

TWENTIETH DISTRICT—WILLIAM R. WARREN, M.D. . *Key West*
Monroe.

TWENTY-FIRST DISTRICT—H. D. CLARK, M.D. . *Ft. Pierce*
St. Lucie, Okeechobee, Indian River, Martin.

PRESIDENT'S SPECIAL APPOINTMENTS

REPRESENTATIVE, FLORIDA HEALTH COUNCIL
H. MASON SMITH, M.D. . . . . *Tampa*

ADVISORY COMMITTEE TO WOMAN'S AUXILIARY
FREDERICK J. WAAS, M.D. . . . . *Jacksonville*
J. H. PIERPONT, M.D. . . . . *Pensacola*
J. E. TAYLOR, M.D. . . . . *DeLand*
J. S. MCEWAN, M.D. . . . . *Orlando*
W. W. MASSEY, M.D. . . . . *Quincy*

REGISTRATION OF DOCTORS

The Florida State Board of Health has recently published the list of practitioners of medicine who registered for 1929. This is a list of all the registered doctors who hold licenses to practice medicine in the State of Florida and will be a valuable guide to the medical profession of the state. In addition to the names and addresses, the telephone numbers are given. These may be used to advantage in making station-to-station telephone calls, thereby reducing the cost of calls. The Bureau of Vital Statistics is to be congratulated on the compilation of this list.

A WORD FROM THE PRESIDENT

The remarks made at the health conference which was held at the call of Governor Doyle Carlton, express my views as to the objectives of the State Medical Association. You may observe from this, the main objective is in educating

NOW our legislators so we will know before our next state meeting at Orlando those who are in favor of any legislation proposed in the interest of the medical profession. I can no better state to the councilors and presidents of the various county medical societies our aims and objects than to give in full my address before that meeting:

Obligation of the Florida Medical Association in Rural Health Conservation

I believe that the medical profession of the State of Florida realizes its individual and collective responsibilities in the matter of promoting public health. In a state famous for its exposition of the superlative in modern civilization, we should be rid of the waste and inefficiency due to disease.

Let us figure for a moment the partial cost to the State of Florida of preventable deaths due to the lack of appropriation of funds for the activities of the State Board of Health for laboratory facilities and the maintenance of additional trained workers in the field. There were 470 deaths in 1929 from malaria, a preventable disease. Thus estimating each life worth $5,000, we would have a loss of $2,350,000. Further estimating, there are two hundred cases of malaria for each death and for each case there is an average of 5 days total disability, considered at a minimum average of $1.00 per day earning capacity giving us a cost of $470,000. This amount added to the death cost would give a total of $2,820,000 for malaria alone. The loss to the state of mothers during childbirth for 1928 was 280. Two thousand deaths of infants under one year and premature births and deaths from injury at birth totalling 669 were also recorded during that year. These figures are appalling when we realize that 50 per cent of these deaths were due to ignorance, negligence or poverty and the majority of cases due to negligence may be properly classed under ignorance. This reveals that much educational work is needed under the department of child hygiene and public health nursing.

The obligation of the Florida Medical Association toward the conservation of human life, as I see it, is:

First: We must endeavor to educate our state legislators as to the necessity of the appropriation of sufficient funds for the State Board of Health to place as many health units throughout the state as they deem necessary to cope with the situation.

Second: We should further cooperate by aiding in every way possible the State Board of Health in carrying out its program.

Third: As an association we should inform our communities as to the vastly improved and more beneficial services which our health departments can render adequately supported. This may be done through the columns of the newspapers and magazines, the lecture platform, the pulpit, the school and every other agency of publicity, to spread the propaganda against disease. Fathers and mothers can easily be interested in any campaign in the name of health on behalf of their children. The people should not have the prevailing attitude towards doctors that puts a premium on disease rather than health, that a doctor is just an expert to be called in an emergency rather than a promoter of health.

Fourth: We should cooperate with the health units in conducting physical examinations of the school children. Conducting free clinics for the examination of children before school age, for the treatment of children unable to employ a physician and the removal of physical defects prejudicial to health.

Fifth: We should educate the laity and again our legislators as to the difference between the well-trained physician and the cults. They should be further taught that no medical or scientific achievement has ever originated with the cults. Many of our preventable deaths are due to patients falling into the hands of the cults until the last ray of hope is gone. This will continue to go on until we can establish laws, as in the Basic Science Act, that will require an examination in the fundamental principles of disease before any school is permitted a license to practice its method of healing. To a layman, a doctor is just a doctor regardless of whether he has had ten years of training or a short course from a mail order house or a mercenary school teaching only spinal manipulation.

Let me say in conclusion that if our legislators were endowed with the keen insight and sense of duty to our health program as our Honorable Governor Carlton, there would be no occasion for this meeting here today and this state of ours would be outstanding in health, happiness and prosperity.

ANNUAL MEETING OF THE CHATTAHOOCHEE VALLEY MEDICAL AND SURGICAL ASSOCIATION

The Chattahoochee Valley Medical and Surgical Association will meet this year in Albany, Ga., July 8-9, 1930. Albany is in the heart of the great industrial and agricultural section of South Georgia. This territory holds within its borders many of the substantial and progressive members of our profession who are always ready to lend their presence to a medical gathering when the program offers helpful suggestions concerning the problems met in their daily labors. Within easy reach by train and automobile are the physicians of Southern Alabama, Northern Florida, the valley of the Chattahoochee and the larger cities of Georgia and contiguous States. A record breaking attendance at Albany is expected and may be attained if the friends of the Chattahoochee Valley Association will but bestir themselves. The services of this unique organization, shorn of medical politics, presenting a paucity of frills and furbelows and always rich in medical meat and good fellowship, have long been felt in the territory bordering on the Chattahoochee Valley. Its place cannot be filled by other splendid meetings of our profession and its past labors are too rich in helpful results to permit of its neglect. We have many medical meetings, to be sure, but this one is true and tried and like a good friend should be "grappled to our souls with hoops of steel." Is it too much then to ask that all physicians, wherever located, interested in the promulgation of medical art and the cultivation of closer cooperation through strengthening influences of social contacts, be requested to reserve Tuesday and Wednesday, July 8-9, 1930, for this meeting, to the end that we may have a creditable gathering to hear and participate in this year's program. It is being prepared with the sole idea of giving to those so situated as to be unable to keep abreast with the rapid advances in medicine, a practical resume of the past year's contributions to our profession. Membership in the Association is secured through registration at the annual session. Reputable men, wherever located, are eligible. You are invited to attend. Come and give to the meeting the result of your own experiences and in turn learn of those of your fellows.

DISCUSSION

(*Continued from page* 546)

Dr. Henry Hanson, Jacksonville:

It has been many years since I have attempted to do anything along the line of work which Dr. Royce has presented here today. But, I can emphasize the importance of what he has presented. It is a great satisfaction to the surgeon, to the physician, and to the general practitioner to have a detailed study of tissues removed at operation for future reference.

I might also mention an experience which I had while doing pathology some years ago. A case was admitted to the Milwaukee County Hospital during the summer of 1909, presenting confusing symptoms leaving diagnosis in doubt until autopsy. All symptoms seemed to point to the man's back. The man finally died. Before that, however, I made some blood studies revealing an anemia with a color index plus one, and nucleated reds. Internists there were thinking of some tumor in the spinal cord. At autopsy a scirrhus carcinoma involving the entire pyloric end of the stomach, was found, with extensive metastasis throughout all mesenteric glands.

Now, we had another case of carcinoma about the same time. The man came in presenting a picture of anemia. Blood analysis, however, did not show pernicious anemia, but did show a very high white count, and also showed on differential count about 230 nucleated reds to each 500 white cells. That just illustrates what you do find when you follow your cases with an analysis and blood examination. And it is very important for you surgeons, when presenting tissue to the pathologist, that you do not leave out some small piece, only sending in the larger ones—but send in everything that you have removed at operation and give the pathologist a chance to thoroughly analyze that specimen and see whether or not you do find at examination the thing that patient actually has. I think that is very clearly illustrated where you have a patient with a diagnosis of carcinoma of the breast and on study you find that it is one of these cases of mastitis where malignancy has not yet established itself.

I thank you.

Dr. Royce, Jacksonville (concluding):

I have nothing further to add.

STATE NEWS ITEMS

On May 12th the postal inspectors arrested an impostor, manipulating under the name of Dr. T. C. Whitehurst, in Tampa. It appears that Whitehurst had an old regular Board license No. 961, issued on December 23, 1915. When Whitehurst made application to the State Board of Health for his annual registration certificate the data submitted were referred to Dr. Wm. M. Rowlett, Secretary of the Board of Medical Examiners, for his okeh, which is the usual routine in issuing the certificates. Dr. Rowlett, in verifying the data submitted, discovered that license No. 961 was issued on December 23, 1915, to Dr. Sam S. Wilson, of Ozona, Florida. The records also showed that Dr. Wilson died some three years ago. The original license had been secured from Dr. Wilson's daughter, who now resides in Tampa.

Upon investigating the records of the Clerk of the Circuit Court of Hillsborough County, it was found that Dr. Wilson's name had been erased from the record and the name of "Tyree C. Whitehurst" inserted in the place of Dr. Wilson. It was also discovered that the index of the record book had not been changed and shows that Dr. Wilson had recorded the license shown on that page on the above date.

This is merely an illustration of the lengths to which some impostors will go in order to defraud the profession and the public. It also demonstrates the benefits to be derived from the annual registration law, giving both the Medical Examining Board and the State Board of Health a double check upon practitioners of the state.

* * *

Dr. William B. Clark, formerly of Atlanta, is now associated with Dr. A. H. Freeman of Ocala. Dr. Clark is a native Floridian and is a graduate of Emory University. He spent several years as interne in the Grady Hospital, Atlanta.

* * *

Dr. T. Allen Jones of Holopaw has relinquished his practice and gone to Asheville, N. C., for a six months' residence. Dr. Wood of Pinecastle has moved to Holopaw, taking Dr. Jones' place.

* * *

Columbia County Medical Society had as its guests physicians from Live Oak, Jasper and Wellborn at a special meeting held May 12th. An hour was devoted to viewing motion pictures of experimental laboratory work and abdominal anatomy.

* * *

Dr. T. C. Davison of Atlanta was recently the guest of the Pasco-Hernando-Citrus County Medical Society.

* * *

Dr. S. G. Hollingsworth of Bradenton has been appointed by Governor Carlton a member of the State Board of Medical Examiners.

* * *

Weems Hospital at Sebring is now equipped to do X-ray work.

* * *

Dr. Louis Orr announces the removal of his offices from 11 Lucerne Circle to 309 Exchange Building, Orlando.

* * *

Drs. Herbert L. Bryans and J. M. Hoffman of Pensacola have become associated in practice with offices at 21-21½ Wright St.

* * *

Drs. R. W. Blackmar and B. F. Woolsey of Jacksonville announce their separation as associates. New addresses will be: Dr. Blackmar, 321 St. James Building and Dr. Woolsey, 320 St. James Building.

* * *

Dr. Edward Jelks, Jacksonville, has been appointed councilor of the Southern Medical Association from Florida, the appointment having been made recently by the president of the Association, Dr. Hugh S. Cumming, Washington, D. C. Dr. Jelks succeeds Dr. H. Marshall Taylor, Jacksonville, whose term had expired and who having served the maximum time permitted under the Constitution was not eligible for reappointment. The Council acts as a Board of Censors and Executive Committee and is composed of one physician from each southern state comprising the Association. The term of a councilor is three years, an equal number expiring each year.

* * *

Dr. Henry Hanson, State Health Officer, and Dr. Noble A. Upchurch, City Health Officer of Jacksonville, have been honored by being named Fellows of the American Public Health Association.

WILLIAM ANDREW JACKSON POLLOCK, JR.

Dr. W. A. J. Pollock, Jr., was born at Cuthbert, Ga., April 12, 1870, and died at Pensacola, March 5, 1930. He attended the Atlanta Medical College from which he graduated in 1894. After graduation he located in Apalachicola where he practiced his profession for two years. In 1896 he moved to Pensacola where he was married and continued in active practice until his sudden death.

Dr. Pollock was a member of the staff of the Pensacola Hospital, Escambia County Medical Society and the Florida Medical Association. He is survived by his widow, Mrs. Virginia Sanchez Pollock, and one daughter, Mrs. Edwina Pollock Gladden, and two grandchildren.

The following resolution was spread upon the minutes of the Escambia County Medical Society.

"Whereas, it has pleased Almighty God in His infinite wisdom to remove from our midst our beloved friend and brother, Dr. W. A. J. Pollock, Jr., and

"Whereas, we, the members of the Escambia County Medical Society feel deeply the loss of our brother and former vice-president of this Society, and

"Whereas, his high ideals and valued counsel, the result of years of conscientious effort, will be greatly missed by our members,

"Therefore, be it resolved that the members of the Escambia County Medical Society express their sorrow in the passing of Doctor Pollock; that a copy of this resolution be entered on the minutes of this Society; that a copy be sent to members of his family and that the same be published in the Journal of the Florida Medical Association and in the local press.

HERBERT L. BRYANS, M.D.
J. H. PIERPONT, M.D.
Committee.

The United States Civil Service Commission announces an open competitive examination for senior medical technician (pathology). Applications must be on file with the Civil Service Commission at Washington, D. C., not later than July 9, 1930. The examination is to fill vacancies in the office of the Surgeon General, War Department, for duty in Washington, D. C., and in positions requiring similar qualifications. The entrance salary is $2,000 a year. Higher-salaried positions are filled through promotion. Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or from the Secretary of the United States Civil Service Board of Examiners at the post office in any city.

* * *

Dr. C. M. Sandusky of Jacksonville was recently appointed as an associate in the ear, nose and throat service of the medical staff of Duval County Hospital.

* * *

The fifty-fifth annual commencement exercises of St. Luke's Hospital Training School were held Thursday, May 15th. The following young ladies received diplomas: Marguerite Mae Ervin, Mamie Mackery Leitch, Georgia Ann Pope, Guynelle Breazeale, Rebah Katherine Waldron, Mary Lee Cochran, Martha Rivers Smith, Marguerite Heitman, Ruth Murray, Sarah Agnes Appleby, Rosa Lamar Collins, Eunice Viola Johnson, Ruth Moore, and Susye Helen Smith.

* * *

Dr. Henry Hanson, State Health Officer, recently spent some time in Madison County, supervising the hookworm demonstrations given by officials of the State Board of Health. He was accompanied by Mr. E. C. Stoy, United States Public Health Service executive, who has been detailed to the State Board of Health to assist in county health unit development.

* * *

Dr. Lewis W. Glatzau of DeLand will spend a year in Vienna, Austria, where he will attend the University of Vienna. He sailed on June 14th. Dr. Glatzau will do post-graduate work in eye, ear, nose and throat.

* * *

FOR SALE—Physiotherapy Equipment in perfect condition. One Standard Junior High Frequency Machine. Original price, $600.00; sale price, $300.00. One Burdick Combination Air and Water Cooled Lamp, self-contained water cooled unit, De Luxe type. Original price, $1,200.00; sale price, $600.00. One Morse Wave Generator. Original price, $425.00; sale price, $200.00. Complete Office Equipment, including Surgical Instruments. If interested write Mrs. C. W. Love, Box 505, Lakeland, Fla.

FOR SALE—McDanold surgical and gynecological office chair with all attachments, in first-class condition. Worth $50.00. $30.00 buys it. Write G. R. Maner, M.D., 5111 Central Avenue, Tampa, Florida.

THE WOMAN'S AUXILIARY PAGE

WOMAN'S AUXILIARY
TO THE
FLORIDA MEDICAL ASSOCIATION, INC.

State Editor
MRS. EDWARD JELKS,
2244 St. Johns Avenue
Jacksonville

OFFICERS

MRS. J. RALSTON WELLS, President . . . . . *Daytona Beach*
MRS. S. E. DRISKELL, President-elect . . . . . *Jacksonville*
MRS. W. G. POST, JR., Vice-President . . . . *St. Petersburg*
MRS. J. M. IRWIN, Historian . . . . . *St. Augustine*
MRS. J. E. TAYLOR, Secy.-Treas. . . . . *DeLand*

A MESSAGE FROM THE STATE PRESIDENT

MRS. J. RALSTON WELLS

Through the courtesy of the Editor and the Business Manager of the Journal of the Florida Medical Association, the Woman's Auxiliary has been granted space in this official publication. We are grateful to them for their kindness and hope to merit their confidence, but we can make a success of this new venture only if we have the interest and cooperation of all our members.

Mrs. Edward Jelks, Jacksonville, is the first State Editor and we expect great things from her. She must have news from you so everything of interest to one person may be of interest to us all. Please send her all news items of your local activities. While our primary interest is in the work being done in Florida, we hope to present to you, from month to month, news of the splendid work being accomplished by the National Organization, and to offer for your attention, programs and projects sponsored by its officers.

We have just closed a successful year in Florida. When I assumed office as President at the close of the Pensacola Convention, I found the affairs of our organization in excellent condition. A spreading interest in our aims and accomplishments is manifest and as I enter upon the work of the coming year, I feel an enthusiastic and strengthened belief in the entirely worth while objects of our association and in their successful consummation.

We women are primarily allied to the medical profession. Its struggles, aims, and future are ours. In this over-organized age, why should not our first interest be that association, the prime object of which is the furtherance of the aims of that glorious profession, medicine; the cementing of friendship, fellowship, and confidence among its members and their families; and the extension of its message to other organizations which look to the advancement of health and education? Such opportunities for service are offered by the Woman's Auxiliary to the American Medical Association. It is my earnest hope that more women in our State will avail themselves of the pleasures and privileges that result from membership in our organization. With the enthusiastic interest and cooperation of the eligible women of Florida, our State Auxiliary should be able to come to the front in its record of accomplishment, and stand shoulder to shoulder with our men.

Our work is not for personal glory, but if we can aid in keeping organized medicine free from personal internal disagreements by furthering good fellowship the various prevalent cults will find an added barrier to their attacks.

I intend to inaugurate a vigorous campaign for the Auxiliary this year, so I hope the summer may bring rest and recreation to all of you and the fall months find you refreshed and ready for work.

* * *

MARION COUNTY ORGANIZED.

We are happy to announce that the Woman's Auxiliary to the Marion County Medical Society was organized in Ocala, May 12, with the assistance of the State Hygeia Chairman, Mrs. Hermann H. Harris, Jacksonville. The following officers were elected:

President—Mrs. H. C. Dozier, Ocala.
Vice-President—Mrs. A. H. Freeman.
Secretary—Mrs. T. H. Wallis.
Treasurer—Mrs. W. B. Clark.

HYGEIA

If every woman would get her husband to place a subscription to Hygeia through the County Auxiliary, she would not only help the treasury of her society, but increase the circulation of an

excellent magazine. The State Hygeia Chairman is Mrs. Hermann H. Harris, 2547 St. Johns Ave., Jacksonville.

Public Relations

The Chairman of the Committee on Public Relations is Mrs. Julius C. Davis, Quincy. Activities of medical interest of all clubs, federations, charities, and other organizations, are of interest to her, and we should keep her informed, as she will us, of the trend of such affairs and how they may be influenced for the good of the public and the advancement of medical science.

Other appointments will be announced later.

Any member of an Auxiliary who is planning to attend the meeting of the American Medical Association in Detroit, June 23-27, will please communicate with Mrs. J. Ralston Wells, 988 S. Peninsula Drive, Daytona Beach.

INDEX

A

Abdominal Lesions, Differential Diagnosis of..... 311
Abscess, Perinephritic and Paranephritic..... 253
Acute Purulent Otitis Media in Children..... 303
Anesthesia, Local, in the Reduction of Closed Fractures and Dislocations..... 59
Anesthesia, Spinal, The Physiology of..... 345
Anorexia in Children..... 209
Aphorisms and Common Errors in Examinations of Babies and Children..... 214
Asthma, Bronchial 451

B

Back Pain, Lower, In Male Individuals..... 23
Bilateral Retinal Detachment Complicating Toxemia of Pregnancy 266
Blood Pressure, Some Impressions and Observations Regarding 450
Bronchial Asthma 451

C

Carcinoma of the Mammary Gland, Surgical Treatment of 546
Cataract Extraction, Intracapsular Method, Report of Cases 75
Children, Acute Purulent Otitis Media in..... 303
Children, Anorexia in 209
Children, Aphorisms and Common Errors in Examinations of 214
Children, Florida, A Comparative Study of Prophylaxis and Therapy of the Acute Infections of..... 551
Children, Successful Feeding of..... 205
Cinchophen Poisoning With Case of Unilateral Deafness 219
Colon, Diverticulosis and Diverticulitis of..... 170
Comparative Study of Prophylaxis and Therapy of the Acute Infections of Florida Children..... 551
Conservative Treatment of Gonorrhea..... 77
Correlation of the Urinary Findings and Renal Pathology in Experimental Streptococcal Nephritis..... 539
Councilors' Reports 409, 462
Cystoscopy and Uretero-Pyelography, Woodruff Catheter Technique 112

D

Deafness—Cinchophen Poisoning..... 219
Death Notices and Obituaries:
Bartlett, Chas. Wm. 37
Bieker, Siegfried 371, 413
Bowen, Frederick J. 464
Calvin, William J. 413
Clyatt, Orlando S. 36
Dickinson, Walter Phillip 517
Humphries, David Granville, Jr. 37
Ives, Albert Cronin 128
Kime, Rufus B. 225
Love, Cicero W. 464
Love, James D. 466
Oglesby, John McGready 176
Oughterson, W. A. 517
Pollock, William A. J., Jr. 569
Underwood, Arthur W. 517
Welch, Harry C. 273
Diabetic, Surgery in the 20
Diabetes Insipidus—Results of Pituitary Extract and Pitressin Administration 161
Differential Diagnosis of Abdominal Lesions..... 311
Diverticulosis and Diverticulitis of the Colon..... 170
Duval, Dr. Charles W., Our Honor Guest..... 460

E

Editorials:
Annual Meeting, Chattahoochee Valley Medical and Surgical Association 567
Aviation Medicine, the Newly Created Specialty 126
Aviation Pilots, Physical Examination of..... 317
Chattahoochee Valley Medical and Surgical Association, Meeting of 567
County Societies 224
Crippled Children's Act 80
Examination of Aviation Pilots..... 317
Hanson, Dr. Henry 174
Hospitals (Approved), Association List of..... 176
Hospitals (Approved), of Florida Medical Association 173
Hospital Day, National 462
Immunize, Who Shall 224
Influenza Epidemic Morbidity..... 81
Malaria Control Measures, Current Studies on 318
Man who "Flocks" by Himself..... 271
Medical Mentor 271
Meeting of Southern Medical Association..... 33
Membership—1930 271
Membership Roster 364
Miami Meeting of Southern Medical Association 270
Morbidity in Recent Influenza Epidemic..... 81
Papers for Next Annual Meeting..... 223
Pensacola Meeting 461, 515
Physical Examination of Aviation Pilots..... 317
Pre-Convention Meeting 363
President, A Word From 566
President, Our 513
Registration, Annual 34
Registration of Doctors 565
Roster, Membership 364
Southern Medical Association, Meeting of..... 33
Southern Medical Association, The Miami Meeting of 270
Taylor, Mrs. Frances Long..... 407
Who Shall Immunize? 224
Word from the President..... 566
Ethics, Medical 73
Examinations of Babies and Children, Aphorisms and Common Errors in 214
Exhibits—Schedule of Prices and Spaces..... 514
Experiences in the Field of X-Ray Therapy in South Florida 166
Expert Testimony—Its Evils 218

F

Factors in the Successful Feeding of Infants and Children 205
Fattening Lean Individuals, Use of Insulin, Report of Thirteen Cases 29
Feeding of Infants and Children..... 205
Foreign Bodies in the Lower Air Passages, a Few Points About 443
Fractures and Dislocations, Anesthesia in the Reduction of 59

Fractures, Compound—Some Observations on the Treatment of 262
Fractures of the Pelvis—Their Treatment by Murphy Sling 68
Further Observation of Hysterectomy and Removal of Fetus Afterwards 268

G

Gall Bladder and Ducts, Surgery of..... 164
Gangrenous Vulvitis or Noma Pudendi 31
Genital Lesions 448
Goitre, Exophthalmic—Surgical Treatment of..... 13
Gonorrhea, Conservative Treatment of..... 77

H

Hemorrhage, Uterine, Radium in the Treatment of.. 355
Hospitals, Approved List of F. M. A. 465
Hydrophobia, Review and Observation of One Case 401
Hysterectomy and Removal of Fetus Afterwards, A Further Observation of..... 268
Hysteria 316

I

Index to Advertisements.....286, 332, 362, 511
Index to Volume XVI 571
Infancy, Pyelitis In 256
Insect-Borne Diseases in South America..... 399
Insulin, Use in Fattening Lean Individuals—Report of Thirteen Cases 29
Intracapsular Method of Cataract Extraction, with Report of Cases 75

L

Laboratory Examination, Routine, of Surgical Tissue 544
Leprosy, Maculo-Anesthetic 107
Lesions, Genital 448
Liver, Pyogenic Infections 314
Local Anesthesia in the Reduction of Closed Fractures and Dislocations 59
Lower Back Pain in Male Individuals..... 23

M

Maculo-Anesthetic Leprosy 107
McDowell, Ephraim 301
Medical Ethics 73
Murphy Sling—In Treatment of Fractures of the Pelvis 68
Myasthenia Gravis—A Case Report..... 361
Myxo-Sarcoma 263

N

Nephritis, Streptococcal, The Correlation of Urinary Findings and Renal Pathology in Experimental.. 539
Noma Pudendi—Gangrenous Vulvitis..... 31

O

Obituaries and Death Notices:
Bartlett, Chas. Wm. 37
Bieker, Siegfried 371, 413
Bowen, Frederick J. 464
Calvin, Wm. J. 413
Clyatt, Orlando S. 36
Dickinson, Walter Phillip 517
Humphries, David Granville, Jr. 37
Ives, Albert Cronin 128
Kime, Rufus B. 225
Love, Cicero W. 464
Love, James D. 466
Oglesby, John McGready 176
Oughterson, W. A. 517
Pollock, William A. J., Jr..... 569
Underwood, Arthur W. 517
Welch, Harry C. 273
Osteomyelitis 308
Otitis Media in Children..... 303

P

Pediatrics, Preventive 404
Pediatrics, Vaccine and Serum Therapy In..... 117
Pelvis Fractures, Treatment by Murphy Sling..... 68
Pensacola, The Convention City..... 454
Perinephritic and Paranephritic Abscess..... 253
Physiology of Spinal Anesthesia 345
(*Continued on page* 574)

Stephenson Brace & Limb Co.

JACKSONVILLE, FLORIDA

"Satisfying Service Promptly Rendered"

ORTHOPEDIC APPLIANCES— We will make for you any orthopedic appliance you need. All are custom built of the best quality steel or aluminum and leather.

ARTIFICIAL LIMBS — We furnish, fit and service the Birmingham Artificial Limb which is guaranteed for 3 years and backed by 33 years constant improvements.

We offer you a service second to none in the South

JACKSONVILLE, FLORIDA
111 Florida Avenue

Telephone 3-0317
OR
7-1448 (Medical Exchange Telephone)

COUNTY SOCIETY	SECRETARY	MEETINGS				Dues Paid
		Date	Time	Place	Luncheon?	
Alachua	J. E. Maines, Jr., M.D., Gainesville.	2nd Tuesday	12:00 Noon	White House	Yes.	88%
Bay	Don S. Fraser, M.D., Panama City.					50%
Brevard	I. K. Hicks, M.D., Melbourne.	Varies		Varies		90%
Broward	Ralph Lingeman, M.D., Ft. Lauderdale.	2nd Tuesday	8:00 P.M.	Chamber of Commerce	No.	75%
Columbia	T. H. Bates, M.D., Lake City.	1st Monday.	7:30 P.M.	Blanche Hotel		64%
Dade	E. N. McKenzie, M.D., Miami.	1st Friday	8:30 P.M.	Club Room, Huntington Bldg.	Occasionally.	77%
DeSoto-Hardee-Highlands	H. V. Weems, M.D., Sebring.		8:00 P.M.	Varies	Yes.	87%
Duval	Kenneth A. Morris, M.D., Jacksonville.	1st Tuesday	8:15 P.M.	Chamber of Commerce Building	No.	68%
Escambia	J. M. Hoffman, M.D., Pensacola.	1st Tuesday	8:00 P.M.	Board of Health Building	No.	69%
Hamilton	J. R. Bruce, M.D., Jasper.					100%
Hillsboro	J. T. Cowart, M.D., Tampa.	1st and 3rd Tuesdays	8:00 P.M.	Tampa Municipal Hospital	No.	79%
Jackson	C. H. Harrison, M.D., Cottondale.	2nd Tuesday	3:00 P.M.	Marianna	No.	64%
Lake	W. L. Ashton, M.D., Umatilla.	1st Thursday	12:30 P.M.	Eustis	Yes	100%
Lee	H. Quillian Jones, M.D., Ft. Myers.	3rd Friday	7:30 P.M.	Lee Memorial Hospital	No.	93%
Leon-Gadsden-Liberty-Wakulla-Jefferson	J. B. Brinson, Jr., M.D., Monticello.	Quarterly	3:00 P.M.	Varies	Yes.	85%
Madison	Geo. O. Davis, M.D., Madison.					
Manatee	A. Q. English, M.D., Manatee.	1st and 3rd Tues. Oct. to May; 2nd Tues. May to Oct.	7:00 P.M.	Dixie Grande Hotel	Yes.	92%
Marion	Thos. H. Wallis, M.D., Ocala.	3rd Thursday	12:30 P.M.	Harrington Hotel	Yes.	80%
Monroe	W. R. Warren, M.D., Key West.	1st Sunday	9:00 P.M.	Varies	Yes.	
Orange	J. R. Chappell, M.D., Orlando.	3rd Wednesday	8:30 P.M.	Varies	No.	67%
Palm Beach	R. G. Lewis, M.D., W. Palm Beach.	2nd Monday	8:00 P.M.	Court House	Yes.	66%
Pasco-Hernando-Citrus	Geo. R. Creekmore, M. D., Brooksville.	2nd Thursday	7:00 P.M.	Varies	Yes.	92%
Pinellas	O. O. Feaster, M.D., St. Petersburg.	Every other Friday	8:00 P.M.	500 Power & Light Bldg.	No.	69%
Polk	Herman Watson, M.D., Lakeland.	2nd Wednesday in Feb., Apr., June, Aug., Oct., Dec.	1:00 P.M.	Lakeland	Yes.	94%
Putnam	E. W. Warren, M.D., Palatka.	2nd Thursday	7:00 P.M.	James Hotel, Palatka	Yes.	60%
St. Johns	A. C. Walkup, M.D., St. Augustine.	3rd Tuesday	8:30 P.M.	Varies	Yes.	85%
St. Lucie-Okeechobee-Indian River-Martin	C. L. Davis, M.D., Okeechobee.	3rd Thursday	8:00 P.M.	Varies	Yes.	100%
Sarasota	F. C. Metzger, M.D., Sarasota.	2nd Tuesday	8:30 P.M.	Varies	Occasionally.	75%
Seminole	J. T. Denton, M.D., Sanford.	2nd Friday	8:00 P.M.	City Hospital		100%
Sumter	W. E. Mitchell, M.D., Coleman.	2nd Tuesday		Varies	No.	
Suwannee	W. C. White, M.D., Live Oak.					67%
Taylor	R. J. Greene, M.D., Perry.	Last Thursday	12:15 P.M.	Eldorado Cafe	Yes.	60%
Volusia	J. Ralston Wells, M.D., Daytona Beach.	2nd Tuesday	7:30 P.M.	Varies	Yes.	78%
Walton-Okaloosa	A. G. Williams, M.D., Lakewood.	3rd Thursday	8:00 P.M.	Varies	Occasionally.	100%
Washington-Holmes	H. A. McClure, M.D., Chipley.					56%

NOTE—Secretaries: Please submit information to complete the above schedule.

Pituitary Extract and Pitressin Administration in Diabetes Insipidus 161
Poisoning, Cinchophen, With Case of Unilateral Deafness 219
Pregnancy, Bilateral Retinal Detachment Complicating Toxemia of 266
Pregnancy, Vomiting of 172
President's Address 493
Presidents and Secretaries of County Medical Societies 510
Preventive Pediatrics 404
Problem of Insect-Borne Diseases in South America 399
Proceedings of Fifty-Seventh Annual Meeting, F.M.A. 495
Program Eleventh Annual Meeting Florida Railway Surgeons' Association 459
Program Fifty-Seventh Annual Meeting of Florida Medical Association 456
Prophylaxis and Therapy of the Acute Infections of Florida Children—A Comparative Study of..... 539
Pyelitis in Infancy 256
Pyelovenous Backflow 155
Pyogenic Infections About the Liver..... 314

R

Radium in the Treatment of Uterine Hemorrhage... 355
Registration from Florida Medical Association at Southern Medical Association Meeting..... 274
Registration Fifty-Seventh Annual Meeting..... 509
Renal Pathology and Urinary Findings in Experimental Streptococcal Nephritis, The Correlation of 539
Retinal Detachment (Bilateral) Complicating Toxemia of Pregnancy 266
Review and Observation of One Case of Hydrophobia 401
Rickets 447
Routine Laboratory Examination of Surgical Tissue 544

S

Schedule of Meetings—Component Societies 39, 129, 179, 229, 277, 373, 415, 467, 573
Secretaries and Presidents County Medical Societies 510
Snakes, Venomous, of North America and Treatment of their Bites 63
Soldiers' Home in Florida, Bill re 414
Some Impressions and Observations Regarding Blood Pressure 450
Some Observations on the Treatment of Compound Fractures 262
Some Practical Suggestions Relating to Urinary Findings in Early Life 221
South America, The Problem of Insect-Borne Diseases in 399
Southern Medical Assn. Meeting—Registration from Florida Medical Assn. 274
Spinal Anesthesia, The Physiology of..... 345
Statement of Ownership, Management, and Circulation of Journal 228, 520
State News Items.....34, 82, 127, 176, 225, 272, 319, 370, 408, 462, 515, 568
Sterility in the Female 444
Surgery in the Diabetic..... 20
Surgery of the Gall Bladder and Ducts..... 164
Surgical Treatment of Carcinoma of the Mammary Gland 546
Surgical Treatment of Exophthalmic Goitre..... 13

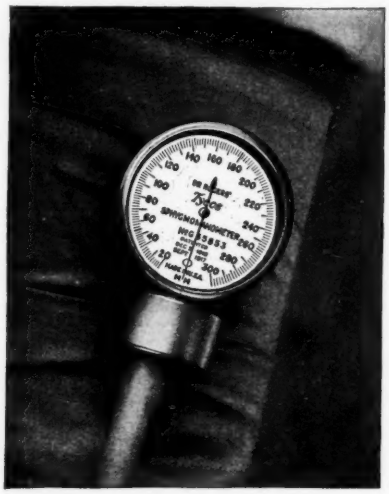
T

Testimony, Expert—Its Evils..... 218
Tissue, Surgical, Routine Examination of..... 544
Tonsil Problems 258
Tuberculosis Abstracts....38, 86, 136, 184, 230, 278, 324, 378, 424, 472, 522, 578
Tularemia 71
Tularemia—Report of a Case in Seminole County.. 403

U

Undulant Fever 115
Uretero-Pyelography and Cystoscopy — Woodruff Catheter Technique 112
Urinary Findings and Renal Pathology in Experimental Streptococcal Nephritis, The Correlation of 539

(*Continued on page* 576)



Tycos Pocket Type Sphygmomanometer

TWENTY-TWO years ago the first *Tycos* Sphygmomanometer was placed on the market. Although modifications have been made whenever desirable, fundamentally the instrument remains the same today.

Every *Tycos* Sphygmomanometer has adhered to an indisputable principle — that only a diaphragm-type instrument is competent for the determination of blood pressure. To faithfully record the correct systolic pressure, an indicator's accuracy must not be affected by the speed at which the armlet pressure is released, only a diaphragm instrument can guarantee this. To honestly give the true diastolic pressure, a sphygmomanometer must respond precisely to the actual movements of the arterial wall, again, only a diaphragm instrument can do this.

Portable, the entire apparatus in its handsome leather case is carried in coat pocket. Durable, its reliability in constant use has been proved by many thousands of instruments during the past twenty-two years. Accurate, its precision is assured by relation of the hand to the oval zero.

Further information relative to the *Tycos* Pocket Type Sphygmomanometer will be furnished upon request.

Write for new 1930 edition of *Tycos* Bulletin #6 "Blood Pressure-Selected Abstracts." A great aid to the doctor who wishes to keep abreast of blood pressure diagnosis and technique.

Taylor Instrument Companies

ROCHESTER, N. Y., U. S. A.

CANADIAN PLANT
TYCOS BUILDING
TORONTO

MANUFACTURING DISTRIBUTORS
IN GREAT BRITAIN
SHORT & MASON, LTD., LONDON-E 17

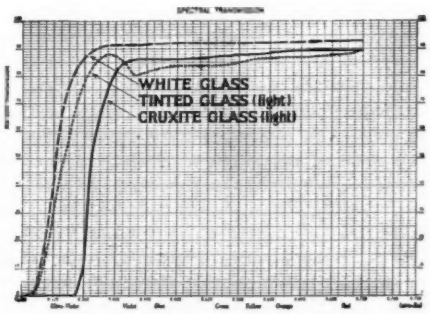
CRUXITE
ABSORPTIVE LENSES
reduce *glare* scientifically

MANY methods have been advanced to reduce glare. You can shade your eyes with your hand. You can squint and get wrinkles; or you can get eye-shades, sunshades, colored glasses, smoked glasses, pink lenses . . . . but under ordinary conditions Cruxite lenses give the best glare-protection.

Their scientific properties—not their color—screen out annoying light rays. They absorb practically all the ultra-violet plus a quantity of the visible—but do not reduce visibility. The reduction in the visible is uniform, constant.

Everything looks just as bright through Cruxite lenses, but the blinding glare is mellowed. All colors appear in their actual shades. Cruxite provides greater eye-comfort but is not habit-forming—and is hardly noticeable on the face.

There are times when all your patients need Cruxite comfort. We suggest you try Cruxite lenses, and prescribe them for your patients.



Cruxite cuts out practically all the invisible ultra violet, and reduces the visible, uniformly.

AMERICAN OPTICAL COMPANY

Urinary Findings in Early Life, Practical Suggestions Relating to..... 221
Use of Insulin in Fattening Lean Individuals—Report of Thirteen Cases..... 29
Uterine Hemorrhage, Radium in the Treatment of.. 355

V

Vaccine and Serum Therapy in Pediatrics..... 117
Venomous Snakes of North America and Treatment of Their Bites 63
Vomiting of Pregnancy 172
Vulvitis, Gangrenous, or Noma Pudendi..... 31

W

Woman's Auxiliary 518, 570
Woodruff Catheter Technique in Modern Cystoscopy and Uretero-Pyelography 112

X

X-Ray Therapy in South Florida, Experiences..... 166

INDEX OF AUTHORS

Adams, D. M. 316
Anderson, L. M. 218
Babcock, Donald T. 308
Barker, Frank T. 63
Bates, T. H. 68
Blackford, L. Minor 115
Blackshear, T. E. 448
Boling, John R. 314
Brinson, J. B., Jr. 172
Bryans, Herbert L. 161
Bryant, James M. 345
Cason, T. Z. 115
Coplan, Milton M. 112
Cranford, J. Frank 77
Dozier, Henry C. 493
Duval, Chas. W. 539
Estes, James L. 253
Farmer, C. H. 404
Fellows, J. H. 447
Gable, John D. 361
Gable, N. Worth 303
Godard, R. F. 263
Haisfield, A. R. 444
Hanson, Henry 399
Heinberg, C. J. 451
Helms, John S. 13, 546
Herring, John A. 170
Holden, Gerry R. 355
Holmes, Roy J. 112
Hopkins, Wm. B. 75
Ingram, L. C. 258
Jelks, Edward 301
Jobson, A. M. C. 20
Kirby-Smith, J. L. 107
Lewis, P. M. 219
Lischkoff, M. A. 443
Love, James D. 221
Lucinian, Joseph H. 166
McKibben, William 117, 214, 551
McRae, E. H. 59
Mabry, Charles 262
Marshall, C. J. 403
Martin, Douglas D. 256
Nichol, E. Sterling 29
Nixon, J. M. 316
Orr, Louis 155
Palmer, H. E. 31
Patterson, William 75
Putnam, H. L. 73
Richardson, Shaler 266
Royce, Clayton E. 544
Rudolph, Councill C. 209
Simpson, J. Knox 164
Sinclair, W. E. 205
Tillman, G. C. 71
Turberville, J. S. 268
Watson, Herman 311
Webb, Carol C. 401, 450
Whitlock, W. E. 23

William D. Jones

Pharmacist

Laura and Adams Streets

Jacksonville

Florida

THE ATLANTA NEUROLOGICAL HOSPITAL

4070 Peachtree Road
ATLANTA, GA.

Maintaining the Highest Standards and stands for all that is best in the Diagnosis and Treatment of Nervous Disorders. Located adjoining the Capital City Country Club in the most beautiful residential section of Atlanta. No Lunatics accepted.

NEWDIGATE M. OWENSBY, M. D.
Medical Director
1210 Medical Arts Building
ATLANTA, GA.

SATISFYING HUNGER *in* DIABETES

When you prescribe for a diabetic patient keep in mind the efficacy of Knox Gelatine as an agent for satisfying appetite without violating the most rigid protein diet.

Here is the purest of gelatine, uncolored, unflavored and unsweetened. It may be combined with such fruits, vegetables, and other foods, as are prescribed for a diabetic patient—and served as a dish *so appetizing in taste and appearance, so satisfying in bulk*, that the most eager appetite will find itself happily abated.

Recognized dietetic authorities have prepared dishes made with Knox Sparkling Gelatine that are a real contribution to the successful treatment of diabetes. Here are two recipes that will aid you in giving diabetic patients complete instructions for home co-operation with your treatment.

KNOX *is the real* GELATINE

Contains No Sugar

JELLIED VEGETABLE SALAD (*Six Servings*)

	Grams	Prot.	Fat	Carb.	Cal.
1 tablespoon Knox Sparkling Gelatine	7	6	---	---	---
¼ cup cold water, 1½ cups hot water	---	---	---	---	---
1 teaspoonful whole mixed spices	---	---	---	---	---
½ teaspoon salt, ⅓ cup vinegar	---	---	---	---	---
½ cup chopped cabbage	50	1	---	3	---
½ cup chopped celery	60	1	---	2	---
¼ cup canned green peas	40	1	---	4	---
¼ cup cooked beets, cubed	40	1	---	3	---
Total	10	---	12	88	
One serving	2	---	2	15	

Soak gelatine in cold water for five minutes. Bring to boil water, salt and spices. Pour on gelatine to dissolve it and add vinegar. When jelly is nearly set, stir in the vegetables, pour into mold and chill until firm. Unmold on lettuce and serve with salad dressing. Garnish with sprig of parsley or strip of pimento.

JELLIED CHICKEN IN CREAM (*Six Servings*)

	Grams	Prot.	Fat	Carb.	Cal.
1 tablespoonful Knox Gelatine	7	6	---	---	---
¼ cup cold chicken broth or water	---	---	---	---	---
1¼ cups boiling chicken broth, fat free	---	---	---	---	---
½ teaspoon salt	---	---	---	---	---
Pinch pepper	---	---	---	---	---
1 cup cooked chicken, cubed	125	24	20	---	---
¼ cup cream, whipped	55	1	22	1.5	---
Total	31	44	1.5	516	
One serving	5	7	---	88	

Soak gelatine in cold liquid for five minutes and dissolve in hot broth. Season with salt and pepper and chill until nearly set. Fold in chicken and whipped cream. Turn into molds and chill until firm. Serve on lettuce or garnish with parsley and strip of pimento.

If you agree that recipes like the ones on this page will be helpful in your diabetic practice, write for our complete Diabetic Recipe Book—it contains dozens of valuable recommendations. We shall be glad to mail you as many copies as you desire. Knox Gelatine Laboratories, 419 Knox Ave., Johnstown, N.Y.

***Name*.....*Address*.....*City*.....*State*.....

TUBERCULOSIS ABSTRACTS

A REVIEW FOR PHYSICIANS

ISSUED MONTHLY BY THE NATIONAL TUBERCULOSIS ASSOCIATION

TUBERCULOUS ulceration of the intestines is a common complication of pulmonary tuberculosis. It is probably a terminal phenomenon in the majority of cases of chronic phthisis. A review of the literature contributed by experienced clinicians, seems to indicate that in from 50 to 75 per cent of the cases the diagnosis of intestinal involvement, in cases of pulmonary tuberculosis, is missed. The reason for this is that nearly all symptoms and signs, including the roentgenological findings usually considered diagnostic, are highly unreliable. In a series of 199 necropsies performed in Montefiore Hospital in New York, and reported by M. Maxim Steinbach, about 63 per cent showed more or less extensive involvement of the intestines. Of these, not more than 38.6 per cent were diagnosed during the life of the patient though careful watch for the complication was constantly maintained. Abstracts from Dr. Steinbach's report and comment follow:

INTESTINAL TUBERCULOSIS

While it is possible for the intestine to become involved in a generalized tuberculous infection, in most instances the condition is secondary to pulmonary tuberculosis, and is caused by the swal-

(*Continued on page* 580)

J. K. ATTWOOD, Pharmacist

Wade Bldg., 1022 Park Street,
JACKSONVILLE, FLORIDA.

BIOLOGICALS TEST SOLUTIONS
STAINS (MICROSCOPIC)
PRESCRIPTIONS

Out-of-town Orders Shipped by Return Mail

DRUG ADDICTS

Drug and Alcoholic patients are humanely and successfully treated in Glenwood Park Sanitarium, Greensboro, N. C.; reprints of articles mailed upon request. Address W. C. Ashworth, M.D., Owner, Greensboro, N. C.

SITUATIONS WANTED

Salaried Appointments for Class A physicians in all branches of the Medical Profession. Let us put you in touch with the best man for your opening. Our nation-wide connections enable us to give superior service. Aznoe's National Physicians' Exchange, 30 North Michigan, Chicago. Established 1896. Member The Chicago Association of Commerce.

MIAMI RETREAT

For Invalids, Mental, Nervous and Addict Patients

MIAMI FLORIDA

5 hours: barium in terminal ileum; colon filled; caecum empty.

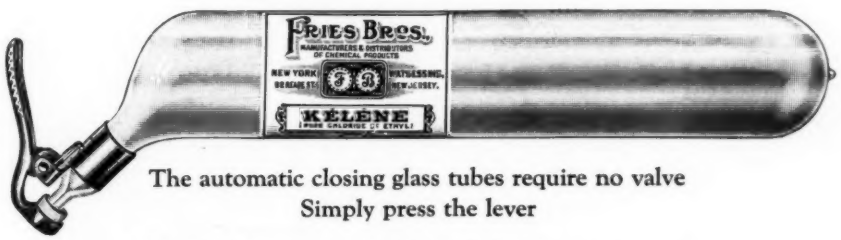
9 hours: defective filling of caecocolon.

24 hours: barium in splenic flexure and rectum.

For Local and General Anesthesia

KELENE

PURE ETHYL CHLORIDE



The automatic closing glass tubes require no valve
Simply press the lever

Sole Distributors for the United States and Canada:

MERCK & CO. INC.

Main Office: Rahway, N. J.

A Florida Institution

FOR many years we have served an exacting and discriminating clientele. Our product is known to those who demand the *better kind of printing.* Professional men find our service helpful—we can solve their printing problems, however difficult.

Specialists in Four-Color Process Printing

THE RECORD COMPANY, *Printers*

Main Office and Plant: St. Augustine, Florida

lowing of tuberculous sputum or by hematogenous deposit. The earliest and most usual distribution of lesions is in the region of the ileocaecal valve. Other portions of the bowel may become involved later, though tuberculosis of the stomach is exceedingly rare. Common symptoms and signs are diarrhea, constipation, cramp and tenderness. Sometimes a mass may be felt in the ileocaecal region. In general, the findings, while suggestive, are not sufficiently clear cut to warrant an exact diagnosis.

STIERLIN'S TECHNIQUE

Stierlin in 1911 described roentgen-ray findings which he believed to be definitely diagnostic of intestinal tuberculosis. He gave two glasses of a liquid bismuth meal and took roentgenographs after 6, 8 and 24 hours. In tuberculous involvement of the intestine, the caecum and ascending colon revealed no shadows whereas the terminal ileum and transverse colon were filled. The explanation he gave for this is that as the result of the ulceration in the ileocaecal region, irritability and motility are increased and the bismuth is quickly passed along. In some cases, Stierlin found a partially filled portion of the colon with fine marbling or long-drawn-out shadows which he attributed to the retention of bismuth by the ulcerations. Studies made subsequently by others discount somewhat the reliability of Stierlin's sign, as it may occur in any ulcerative or indurative changes in the caecum, which Stierlin himself admitted. On the other hand, the sign is lacking very often in cases of tuberculosis in that region of the gut.

TRUDEAU STUDIES

Brown and Sampson applied Stierlin's technique and in an early publication reported 39 cases diagnosed by the roentgenograph, of which 38 were corroborated by surgical exploration of the abdomen. In a later monograph on this subject, published in 1926, they state:

(*Continued on page* 582)

Brawner's Sanitarium

ATLANTA, GEORGIA

A modern neuropsychiatric hospital with special laboratory facilities for the study and treatment of early cases. Also a department for the treatment of drug and alcoholic addictions.

The Sanitarium is located on the Marietta Electric Car Line, ten miles from the center of Atlanta, near Smyrna, Ga. The grounds comprise 80 acres. The buildings are steam heated, electrically lighted, and many rooms have private baths.

Address communications to Brawner's Sanitarium, Smyrna, Ga., or to the city office, 79 Forrest Ave., Atlanta, Ga.

DR. JAS. N. BRAWNER, Medical Director.
DR. ALBERT F. BRAWNER, Resident Physician.

We would like to have you try

Nonspi

(An Antiseptic Liquid)

For Excessive Armpit Perspiration

NONSPI destroys armpit odor and removes the cause—excessive perspiration.

This same perspiration, excreted elsewhere through the skin pores, gives no offense because of better evaporation.

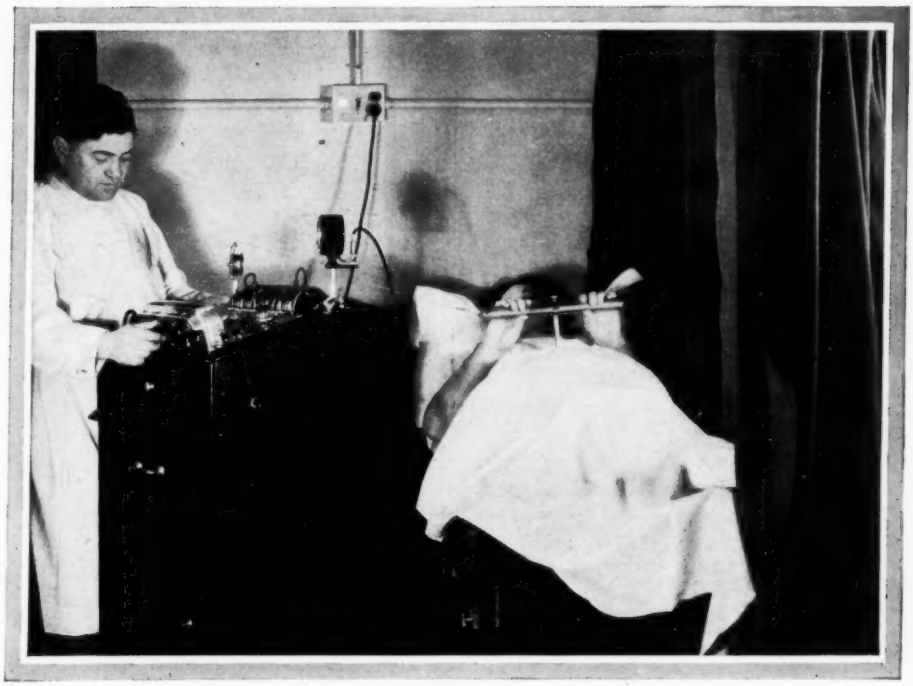
We will gladly mail you Physician's testing samples.

THE NONSPI COMPANY
2652 WALNUT STREET
KANSAS CITY, MISSOURI

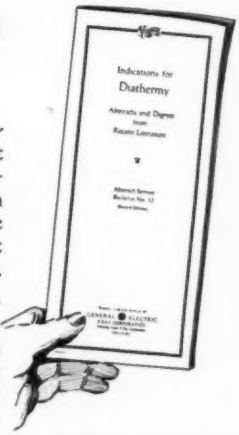
Send free NONSPI *samples to:*

Name.....
Street.....
City.....

TRADE NONSPI MARK



When is Diathermy of Value in Your Practice?



YOUR decision to use diathermy in the treatment of any condition will, of course, be based on recognized medical authority. Many physicians have become interested as a result of observing the many references to diathermy in current medical literature, and no doubt intend to investigate for themselves when opportunity presents. But a busy practice affords little of the time required in searching the files of the medical library, and it is put off indefinitely.

A preliminary survey of the articles on diathermy, published during the past year or so, is available to you in the form of a 64-page booklet entitled "Indications for Diathermy." In this booklet you will find over 250 abstracts and extracts from articles by American and foreign authorities, including references to more than a hundred conditions, in the treatment of which the use of diathermy is discussed.

If you number yourself among the physicians who have not adopted diathermy in practice, and desire to investigate this form of therapy in view of reaching your own conclusion as to its value in your practice, you will find this booklet a convenient reference. A copy will be sent on request.

ATLANTA—155 Forrest Avenue, N. E.,

GENERAL ELECTRIC X-RAY CORPORATION

2012 Jackson Boulevard Chicago, Ill., U. S. A.

FORMERLY VICTOR X-RAY CORPORATION

Join us in the General Electric Hour broadcast every Saturday night on a nationwide N. B. C. network.

General Electric X-Ray Corporation
2012 Jackson Blvd., Chicago.

Not being a user of diathermy in my practice, please send your 64-page booklet "Indications for Diathermy."

Dr. .....

Address .....

City ..... *State* .....

Since 1918, 2,595 patients have been studied in the roentgen ray department at Trudeau, in regard to the presence or absence of intestinal tuberculosis. In all these patients, a diagnosis of pulmonary tuberculosis had caused them to seek treatment. In 867 patients, a positive diagnosis was made, and in 1,726 tuberculous colitis was excluded. Of the negative group, 46 went to operation or autopsy, and in 44 tuberculous colitis was absent, while in 2 it was present. In the 62 cases diagnosed as positive by the roentgen ray method which went to operation or autopsy, all had tuberculous colitis.

MONTEFIORE STUDIES

Encouraged by the work of Brown and Sampson, Steinbach studied during the past six years, 273 cases at Montefiore Hospital, of which 71 cases came to necropsy. Four cases were excluded because of faulty technique, leaving 67 cases in which it was possible to correlate the roentgen findings with those of necropsy. Care was taken to excise, wash and inspect the intestinal mucosa as lesions are often confined to the mucosa and submucosa and are not visible through the serosa. Often the ulcerations are found only after microscopic search. The 67 cases thus correlated are divided into two groups: Group I embracing those in which roentgen and necropsy findings were in agreement, and Group II those in which they did not agree. The results are tabulated as follows:

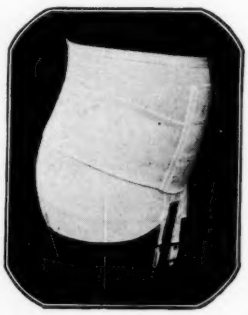
Group I. Thirty-two cases of agreement between roentgen and necropsy findings

Roentgen and necropsy findings both positive	20 cases
Roentgen suggestively positive, necropsy positive	5 "
Roentgen negative, necropsy negative	7 "
	32 "

(*Continued on page* 584)

Any one can make belts, but belts which give compression without uplift may do serious injury

"STORM" The New "Type N" STORM Supporter



Pleases doctors and patients. Long laced back. Soft extension, low on hips. Hose supporters attached.

Takes Place of Corsets

Adapted for ptosis, hernia, pregnancy, obesity, relaxed sacro-iliac articulations, kidney conditions, high and low operations.

Katherine L. Storm, M.D.
Originator, Owner, and Maker
1701 DIAMOND ST. PHILADELPHIA

Lac-Bismo
(HART)
See Description, Journal A. M. A. Volume XLVII, Page 1488
A scientific combination of Bismuth Subcarbonate and Hydrate suspended in water.
Each fluidrachm contains 2½ grains of the combined salts in an extremely fine state of subdivision.
Medicinal Properties: Gastric Sedative, Antiseptic, Mild Astringent and Antacid.
Indications: In Gastro-Intestinal Diseases, Diarrhoea, Dysentery, Cholera-Infantum, etc. Also suitable for external use in cases of ulcers, etc.
E. J. HART & CO., Ltd.,
Manufacturing Chemists
NEW ORLEANS

LISTERS CASEIN PALMNUT DIETETIC FLOUR
No Starch
prescribed in
→ Diabetes ←
Strictly starch-free, palatable muffins, bread, cakes, pastry, etc., are easily made in any home from Listers Flour. Recipes are easy to follow and Listers Flour is self-rising. One month's supply $4.85
Ask for nearest Depot or order direct.
LISTER BROS. Inc., 41 East 42nd St., NEW YORK, N.Y.

X-RAY and CLINICAL LABORATORIES of
DRS. LAKE AND AYERS

A. J. Ayers, M.D., Director Laboratory of Clinical Pathology
Wm. F. Lake, M.D., Director Laboratory of X-Ray

Tissue examination, gross and microscopic, Blood Chemistry, Serology, Bacteriology and Metabolism.

We are equipped to do all X-Ray and Laboratory diagnoses and X-Ray therapy. Containers and information furnished upon request. Reports telegraphed when desired.

111 MEDICAL ARTS BUILDING **ATLANTA, GA.**

Approved by the Council on Medical Education and Hospitals of the American Medical Association.

THE WALLACE SANITARIUM

SUCCEEDING WALLACE-SOMERVILLE SANITARIUM, MEMPHIS, TENN.

MEMPHIS, TENN.

WALTER R. WALLACE, M.D.
HUGH W. PRIDDY, M.D.
FOR THE TREATMENT OF

DRUG ADDICTIONS,

ALCOHOLISM, MENTAL AND

NERVOUS DISEASES

LOCATED IN THE EASTERN SUBURBS OF THE CITY. SIXTEEN ACRES OF BEAUTIFUL GROUNDS. ALL EQUIPMENT FOR CARE OF PATIENTS ADMITTED.

AMBULANCE DIRECTORY

CAREY HAND
32-36 Pine Street,
ORLANDO, FLORIDA
Telephone 4381

MARCUS CONANT COMPANY
A. W. RUUS, President
JACKSONVILLE, FLORIDA
Telephones: 5-0010 and 5-0011

J. W. WILHELM FUNERAL HOME
145 Eighth Street, North
ST. PETERSBURG, FLORIDA
Telephone 8181

MOULTON & KYLE
13 West Union Street
JACKSONVILLE, FLORIDA
Telephone 5-0186

COMBS FUNERAL HOMES
Ambulance Service
Phone 32101 MIAMI, FLORIDA
Phone 52101 MIAMI BEACH, FLA.

FERGUSON UNDERTAKING CO.
1201 South Olive
WEST PALM BEACH, FLA.

Group II. Thirty-five cases of disagreement between roentgen and necropsy findings

Roentgen positive, necropsy negative..	3 cases
Roentgen negative, necropsy positive..	18 "
Roentgen indefinite, necropsy positive..	6 "
Ronetgen indefinite, necropsy negative.	4 "
Roentgen negative, necropsy showing lesions in small gut only.....	4 "
	35 "

WHY FINDINGS DISAGREE

Special investigations were made to discover why in certain cases the roentgen and necropsy findings did not agree. After citing specifically several case histories, the author concludes that "these cases illustrate that defect in filling of caecum and ascending colon, associated with hypermotility, is not always pathognomonic of tuberculous colitis, but may be present in other conditions of the large and small intestines in which there is irritability resulting in diarrhea. Fishberg enumerates the commonest causes of diarrhea in tuberculous patients as follows: (1) intestinal ulceration, (2) intestinal catarrh, (3) dietetic errors, (4) amyloid degeneration, (5) swallowing of sputum, and (6) toxemia. It is easy to see that any one of these above enumerated causes may produce the classical clinical signs of tuberculous enteritis without the presence of intestinal ulceration."

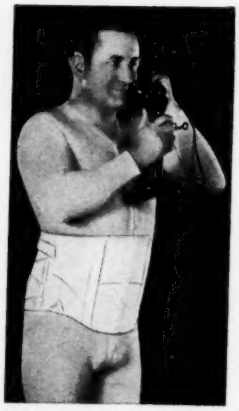
Conversely he finds that, "absence of hypermotility and defect in filling does not exclude tuberculous colitis or enteritis or a combination of the two."

CONCLUSIONS

The final conclusion is that "on the basis of 67 cases of far-advanced pulmonary tuberculosis, studied clinically, roentgenologically and at autopsy in relation to a diagnosis of tuberculous ulceration of the intestines, we have found that the roentgenological signs usually considered diagnostic of this condition were highly unreliable in over 52 per cent of our cases."—*Comparative Radiographic and Anatomical Studies of Intestinal Tuberculosis. M. Maxim Steinbach, Am. Rev. of Tuberculosis, January, 1930.*

(This review secured by the Florida Public Health Association from the National Tuberculosis Association).

CAMP
Supporting Garments
For Diaphragm and Upper Body Support



This new Camp High Belt provides adequate support to the diaphragm and upper body. Designed particularly for use following gall bladder and stomach operations and in all cases where scientific body support is desired. As in all Camp Supports, the Camp Patented Adjustment is the distinctive feature—giving sacro-iliac and lumbar support to the back. Note two sets of straps, a new departure which makes manipulation easy and a strong pull possible, fitting the support closely to the body and assuring comfort to the wearer.

Write for physican's manual.

Two Models: *For the tall man with full upper body—for the short full figure. Adjustable to all types. Dealers stocking these items will find a ready sale with fine profit possibilities. Sold by better drug and surgical houses.*

S. H. CAMP AND COMPANY
Manufacturers, JACKSON, MICHIGAN
CHICAGO LONDON NEW YORK
59 E. Madison St. 252 Regent St., W. 330 Fifth Ave.

ARCADE PRESCRIPTION PHARMACY

The Strictly Ethical Prescription and Sick Room Store

W. E. FOSSETT
Proprietor

6 Halcyon Arcade No. 2 and 12 N.E. 2nd Ave.
Phones 2-7691 and 2-7692
MIAMI, FLA.

Rubber Goods, Prescriptions, Surgical Dressings, Biologicals, Hospital Supplies, Sick Room Supplies

Mail orders will be shipped same day received. Laboratory stains and reagents.

FOSSETT'S PRESCRIPTION PHARMACY
Room 606, Huntington Bldg.
Phone 2-7714
Same Complete Stock Carried as in Arcade Prescription Pharmacy.